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Fuel Economy of Heavy Duty Vehicles

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"Fuel Economy of Heavy Duty Vehicles"

September, 1976

Chester J. France

Standards Development and Support Branch
Emission Control Technology Division
Office of Mobile Source Air Pollution Control
Office of Air and Waste Management
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16. Abstracts

This report summarizes the fuel economy data analysis performed on data from "A Study of Emissions from Heavy Duty Vehicles". The contract involved emission testing of 30 trucks. The truck stratification included two axle single unit trucks, 3 axle single unit trucks, and tractor trailer trucks. Eighteen gasoline and twelve diesel engine powered trucks constituted the 30 tested. All measurements were taken on a chassis dynamometer. From the emission measurements, fuel consumption was calculated using the carbon balance technique. Although both transient and steady state data were gathered, only the steady state fuel consumption was analyzed in this effort. Conclusions: diesel powered trucks peak fuel economy was attained at 30 mph; gasoline powered trucks peak fuel economy occurred at 40 mph for light load test conditions, 30 mph at heavier.

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Velocity
Data analysis

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Fuel economy

17c. COSATI Field/Group

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Fuel Economy of Heavy Duty Vehicles

Introduction

This report summarizes the fuel economy data analysis performed on data from Contract No. 68-03-2147, "A Study of Emissions from Heavy Duty Vehicles." This recently completed contract was conducted by Southwest Research Institute.

The contract involved emission testing of 30 trucks. The truck stratification included two axle single unit trucks, 3 axle single unit trucks, and tractor trailer trucks. Eighteen gasoline and twelve diesel engine powered trucks constituted the 30 tested. All measurements were taken on a chassis dynamometer. From the emission measurements, fuel consumption was calculated using the carbon balance technique. Although both transient and steady state data were gathered, only the steady state fuel consumption was analyzed in this effort.

The steady state testing involved running the trucks at various constant speeds. Test speeds included 5, 10, 15, 20, 30, 40, and 55 mph. Also, three different test weights were used for each truck: empty, half load, and full load. (The individual test results are found in Appendix A.)

Data Analysis

Initially, mile/gallon averages were calculated for all gasoline and all diesel trucks. Figures 1 and 2 show the plotted averages. For the diesel powered trucks tested, peak fuel economy (6.8 to 7.8 MPG) is attained at approximately 30 mph, regardless of loading (empty, half, or full load). For an empty diesel truck, fuel economy is decreased by 6.8% when traveling at 40 mph relative to the 30 mph maximum. At 55 mph fuel economy decreases by 14.4%. For a half loaded diesel truck, fuel economy decreases 10.8% at 40 mph and 25.5% at 55 mph. Similarly, the fully loaded diesel trucks experienced a fuel economy decrease of 14.9% at 40 mph and 33.4% at 55 mph.

The gasoline trucks tested also attained the best fuel economy (7.1 to 7.8 MPG) near a speed of 30 mph. However there seems to be less of a decrease in fuel economy when going from 30 mph to 40 mph, than with diesel trucks. In fact, when empty, there is a slight increase (+1.8%) in fuel economy at 40 mph. For half and full load conditions, fuel economy decreases of 1.6% and 4.9% were experienced at 40 mph. At 55 mph decreases of 16.3%, 20.6%, and 23.0% were obtained for empty, half, and full payload, respectively.

The next step in the data analysis was to group the trucks according to configuration. This was done by calculating the average fuel economies for the following truck categories: two axle-gasoline, two axle-diesel, three axle-gasoline, three axle-diesel, tractor trailer-gasoline, and tractor trailer-diesel. Figures 3 through 8 show the plots of the calculated fuel economies versus mph.

The 2 axle-diesel, 3 axle-diesel, and tractor trailer-diesel trucks achieve their best fuel economy at 30 mph. Table 1 summarizes fuel economy decreases associated with increased speed and load for the diesel powered trucks. The plots illustrate that the diesel trucks have a very distinct fuel economy peak at 30 mph. Further, the percentages in Table 1 demonstrate that there is a substantial decrease in fuel economy when speeds exceed 30 mph.

Similarly, Table 2 summarizes the fuel economy increases/decreases associated with increased speed and load for the gasoline powered trucks. Unlike the diesel trucks, the gasoline trucks have a less pronounced fuel economy peak. The peak fuel economy is much less pronounced than the diesel trucks, between 30 and 40 mph. In fact, at empty load, the gasoline trucks achieve their best fuel economy at 40 mph. As the load is increased to half and full, the peak fuel economy does occur at 30 mph, like the diesel powered trucks.

Discussion

As can be seen from the plots, vehicle speed has a significant effect on fuel economy. As speed is increased, road load horsepower increases and consequently fuel consumption increases. Rolling resistance, air resistance, and road grade are the three primary items affecting road load horsepower. For the data being analyzed, road grade was not a factor since the chassis dynamometer simulates truck operation on a level road. Only rolling resistance and air resistance are important. Rolling resistance increases linearly with vehicle speed and air resistance increases as the cube of vehicle speed. Therefore, it is not surprising that fuel economy will decrease as speed is increased.

The fact that the gasoline powered trucks tested have a less pronounced fuel economy peak as compared to the diesel powered trucks can probably be attributed to the difference in performance maps of gasoline and diesel engines. Also, where the location of a specific operating point is on the performance map can drastically affect fuel consumption. Fuel consumption not only varies with engine horsepower (HP), but also with engine speed. Horsepower requirements may stay constant, however, depending upon what rpm the engine is operating at, the engine fuel consumption can be influenced substantially.

For the steady state testing, SwRI attempted to select gear - axle relationships which required an engine speed of approximately 2000 rpm to obtain the necessary vehicle speed. In some cases this was impossible due to the vehicle speed required and the gear spacing. Therefore, frequent deviations above and below 2000 rpm occurred (refer to Appendix A). As stated earlier, if a particular engine horsepower output is required to maintain a constant mph value, various engine speeds can produce this necessary horsepower output. However, fuel consumption can change dramatically when engine rpm is varied while maintaining a constant horsepower

output. Figure 9, a typical performance map for a heavy duty diesel engine, illustrates the effect of engine rpm on fuel consumption. For a constant HP of 100, fuel consumption can vary from .360 to more than .400 lbm/bhp-hr, depending upon engine rpm (refer to Fig. 9). This clearly illustrates the effect of engine rpm on fuel consumption (fuel economy). In summary, gear-axle ratios can substantially affect the fuel consumption of an engine and ultimately the fuel economy of a vehicle.

Another factor that should be considered is the limited scope of the data itself. The data analyzed in this report, was collected entirely during chassis dynamometer simulation of truck operation on a level road. A very important factor influencing the results of chassis dynamometer testing is road load horsepower simulation. For heavy duty trucks the road load horsepower simulation on the dynamometer is not defined nor understood very well.

In a cursory analysis, SwRI has demonstrated that the air resistance portion of road load is accurately simulated for empty and lightly loaded trucks, but is too high for heavily loaded trucks. Also, at low speeds the dynamometer power settings become quite small (refer to Figure 10). This fact causes SwRI to conclude further that the variability of the test procedure probably exceeds the actual difference due to a change in load. This is especially true at low speeds (less than 30 mph).

Chassis dynamometer testing of heavy duty trucks to date is not very precise over the full range of vehicle speeds and loads because of the road load simulation problem. For this reason, the fuel economy data used in this analysis may lack precision.

Summary and Conclusions

In conclusion, the results as plotted in figures 1 through 8 demonstrate the effect of vehicle speed on truck fuel economy. For diesel powered trucks peak fuel economy was attained at 30 mph. For gasoline powered trucks peak fuel economy occurred at 40 mph for light load test conditions, while for heavier load test conditions peak fuel economy occurred at 30 mph, like the diesels. In general, it is concluded that best fuel economy for heavy duty trucks occurs between 30 and 40 mph. The results show the pronounced effect of speed on fuel economy: as speed is increased above 30 to 40 mph, fuel economy decreases.

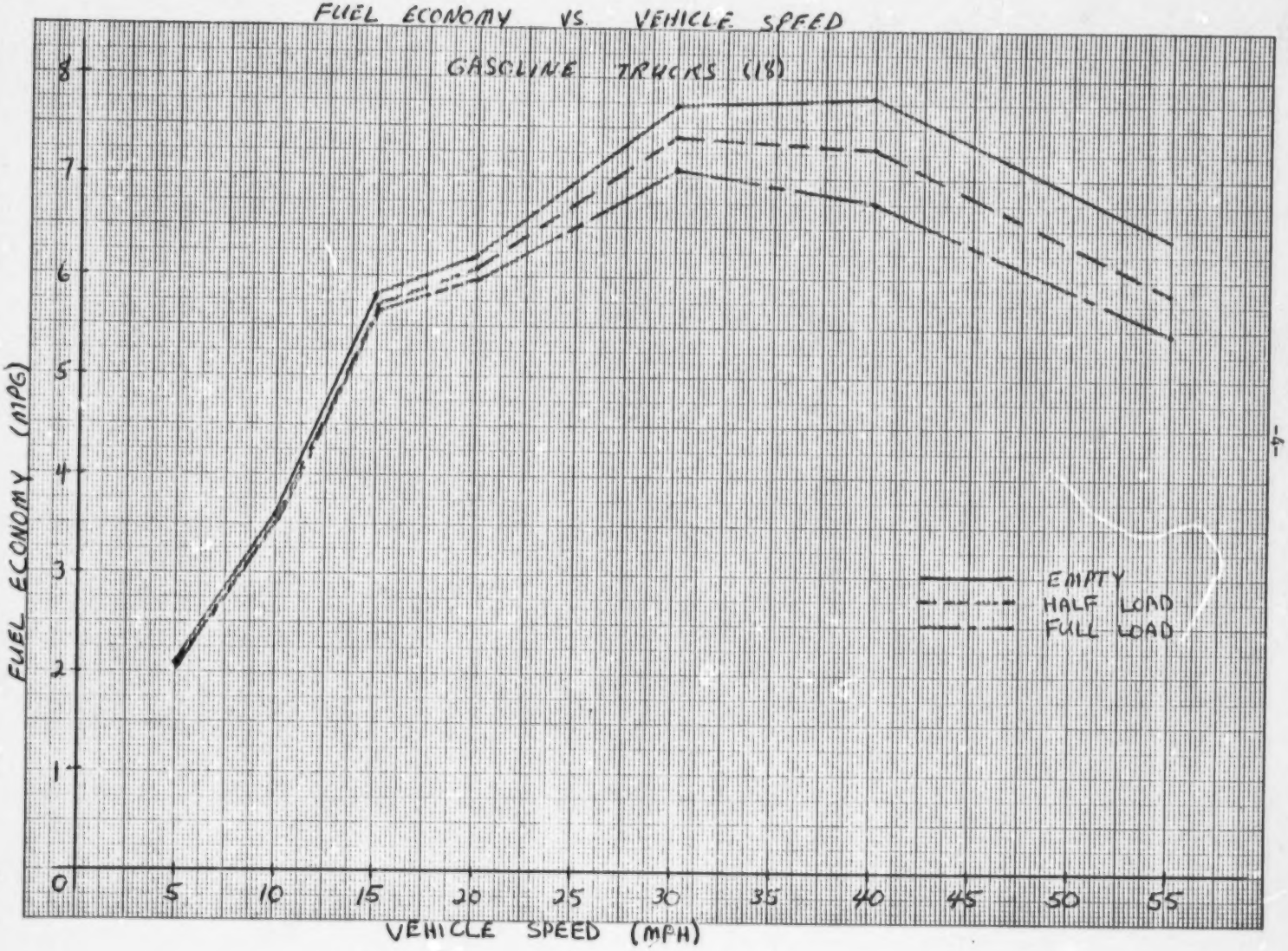

Figure 1

10 X 10 TO THE CENTIMETER 18 X 25 CM.
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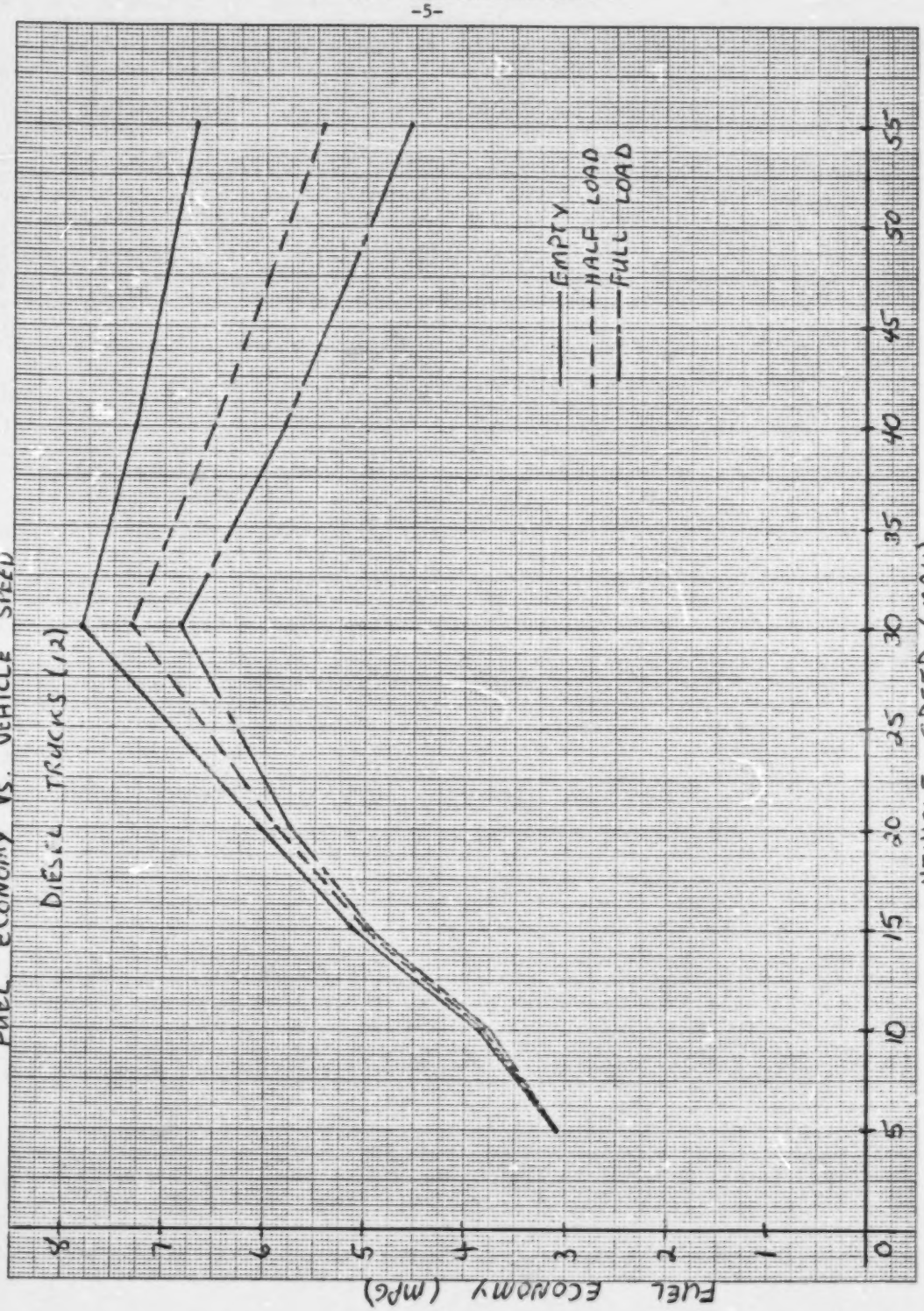

Figure 2

10 x 10 TO THE CENTIMETER 18 x 25 CM.
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10 X 10 TO THE CENTIMETER 18 X 25 CM.
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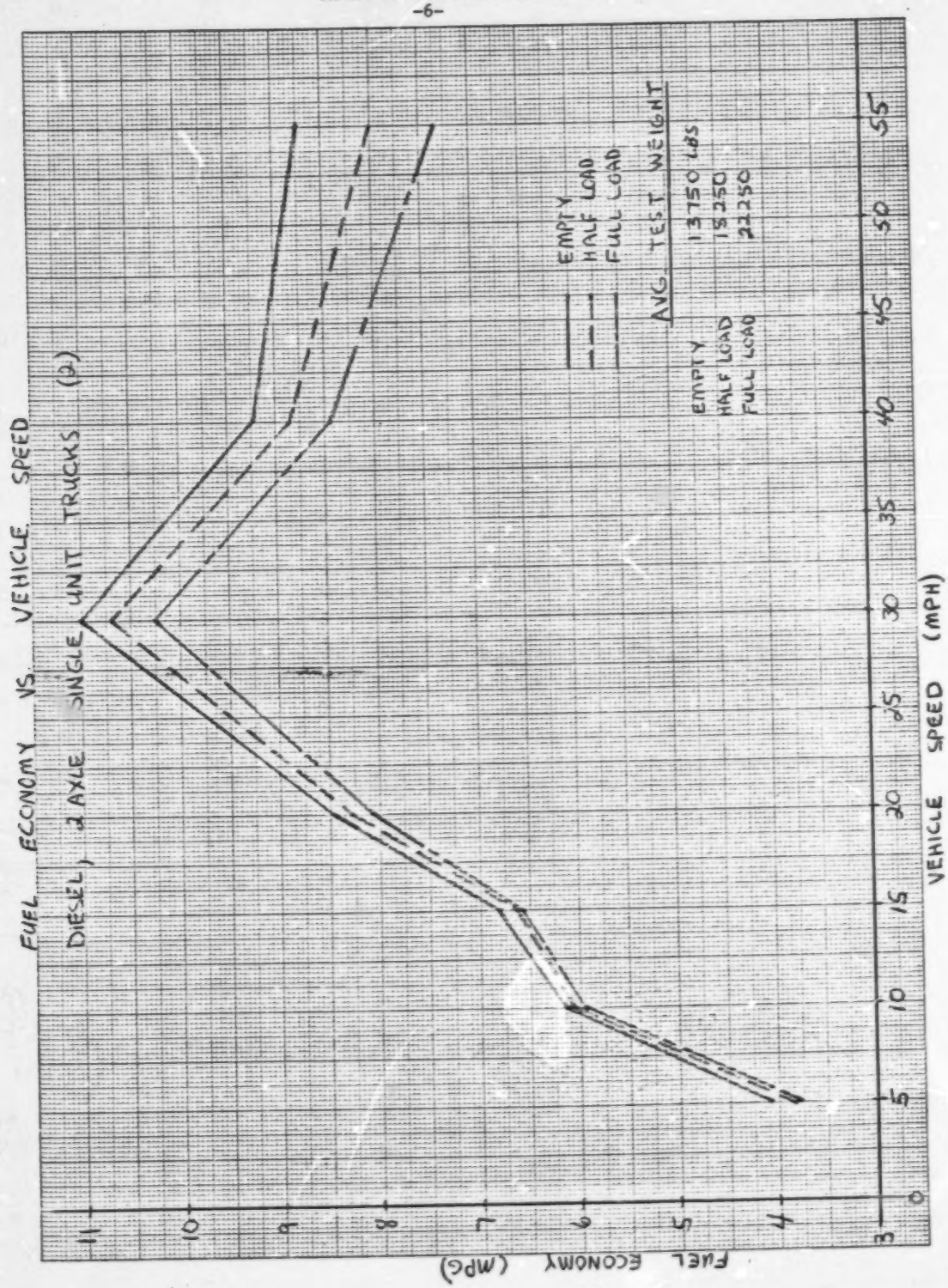

Figure 3

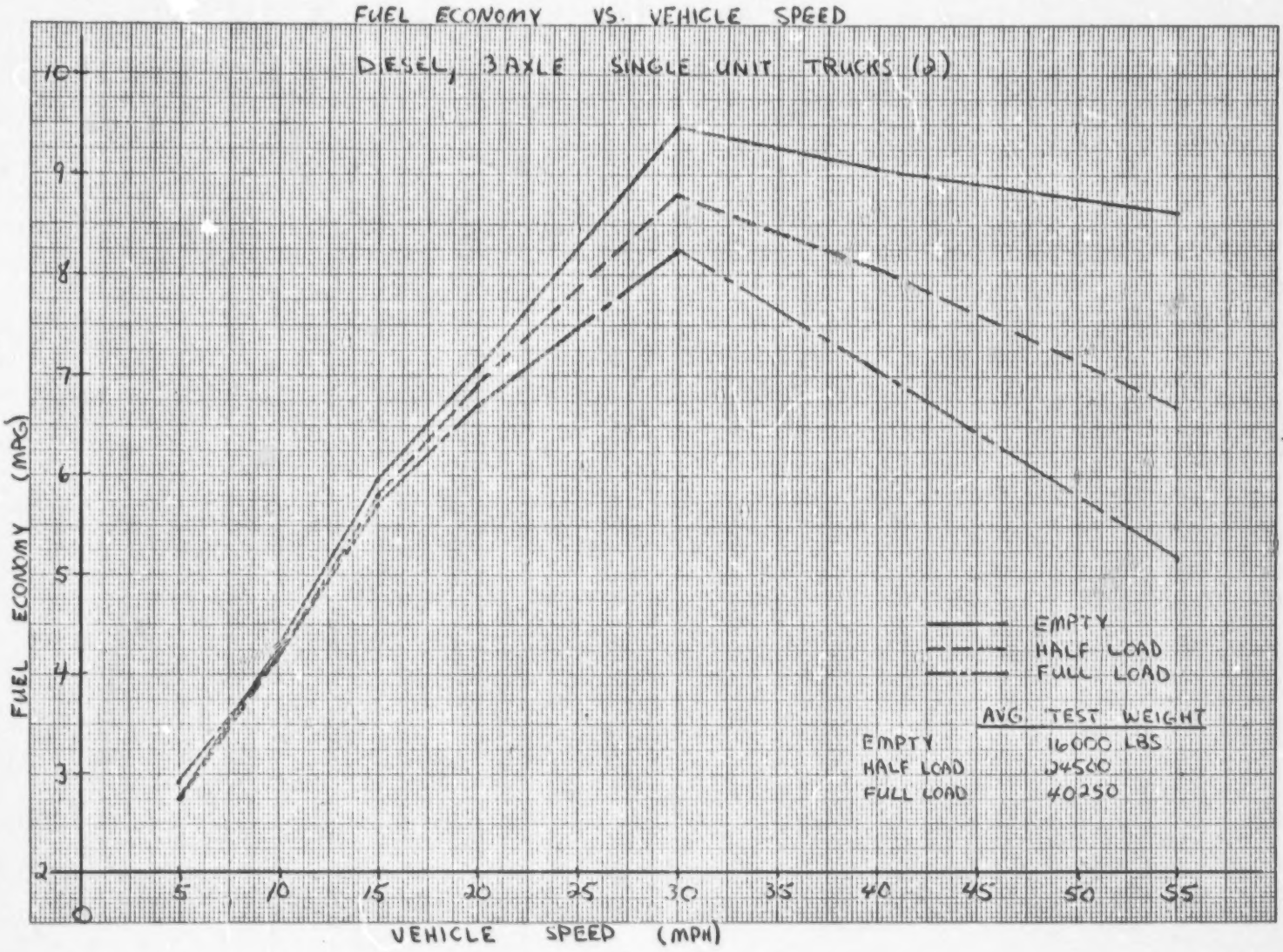

Figure 4

10 X 10 TO THE CENTIMETER 18 X 25 CM.
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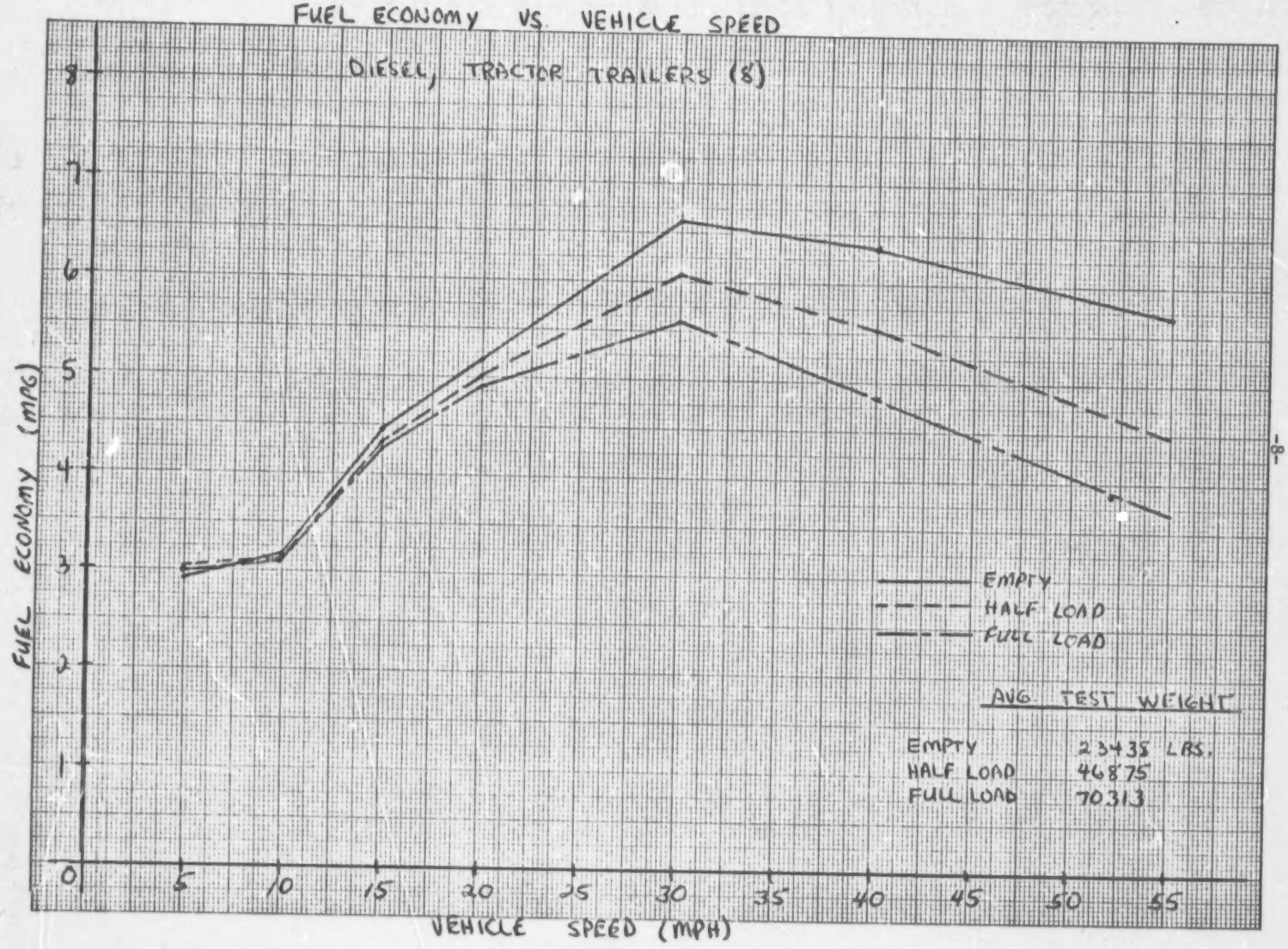

Figure 5

10 X 10 TO THE CENTIMETER 18 X 25 CM.
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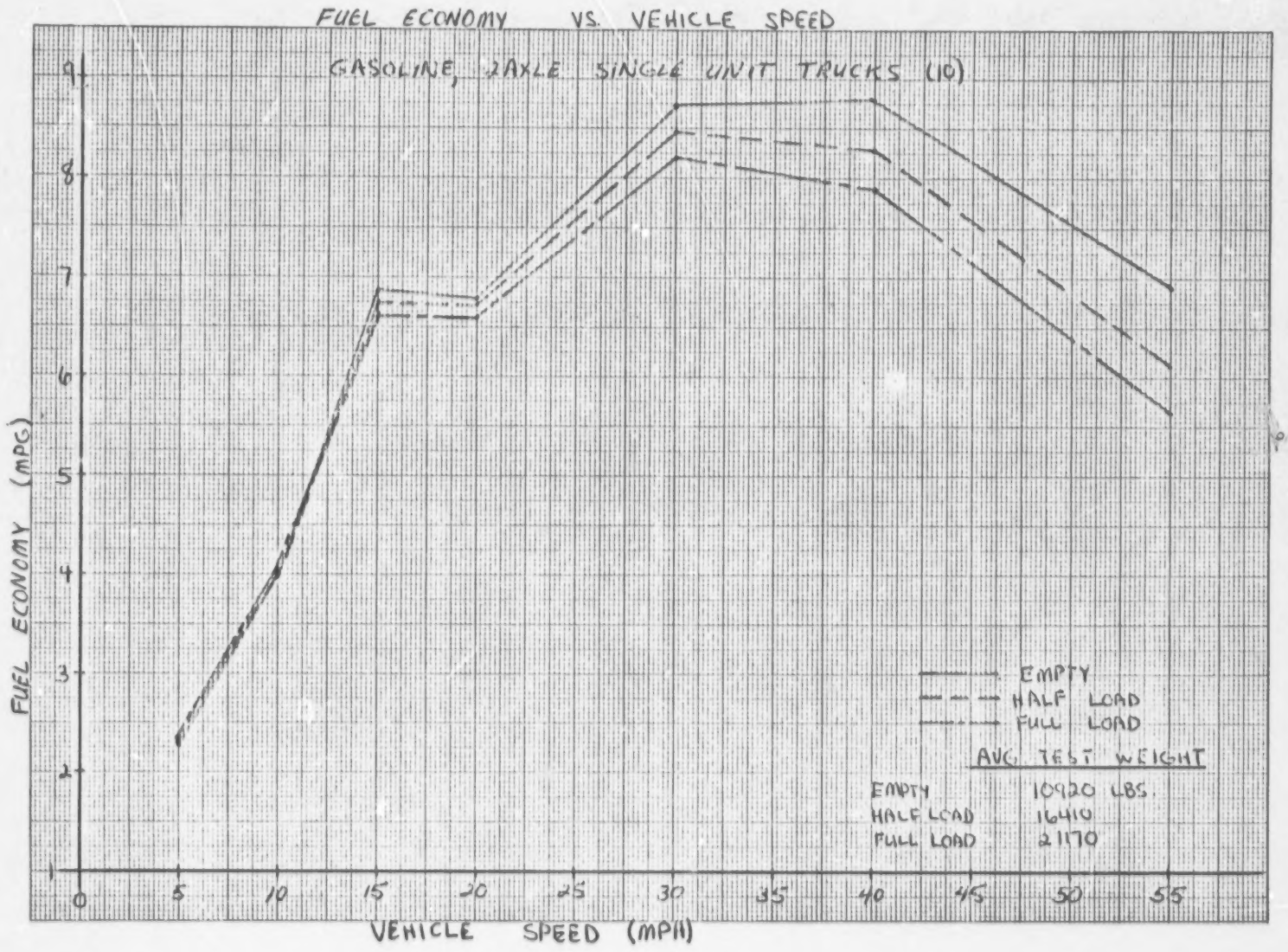

Figure 6

10 X 10 TO THE CENTIMETER 18 X 25 CM.
UNITED CONVERTERS & PRINTERS

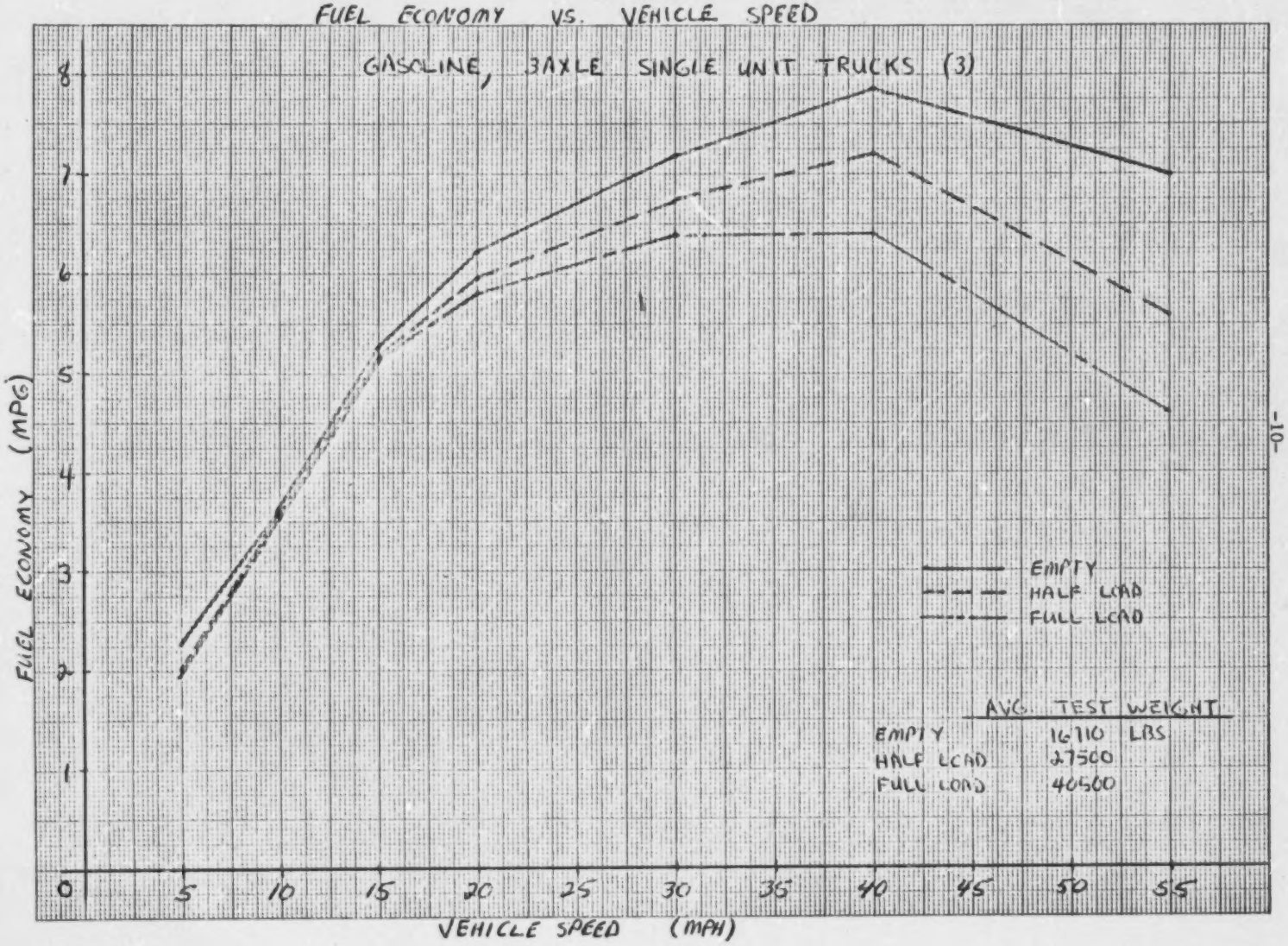

Figure 7

10 X 10 TO THE CENTIMETER, 18 X 25 CM.
UNITED CONVERTERS & PRINTERS

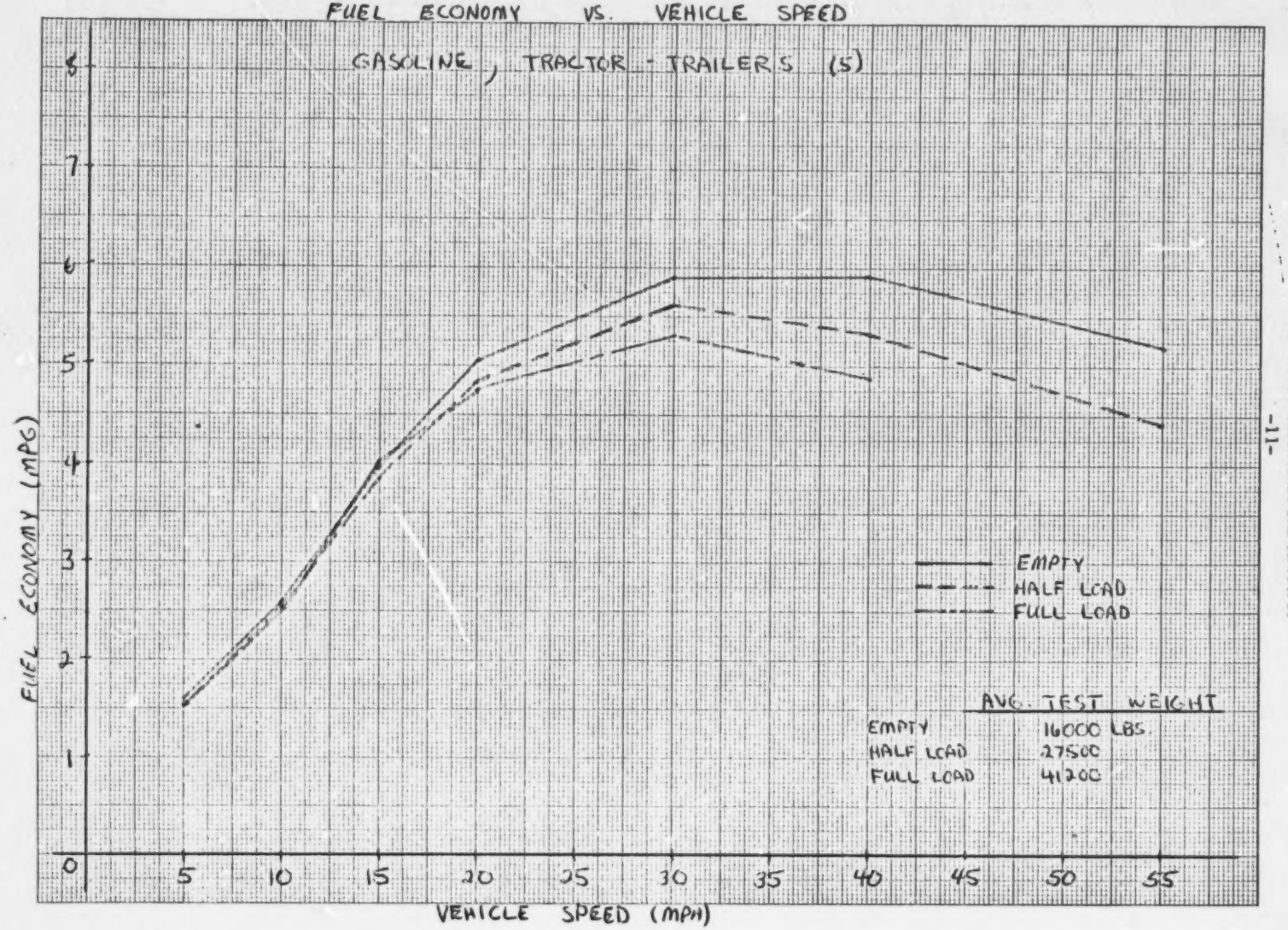

Figure 8

10 X 10 TO THE CENTIMETER 18 X 25 CM.
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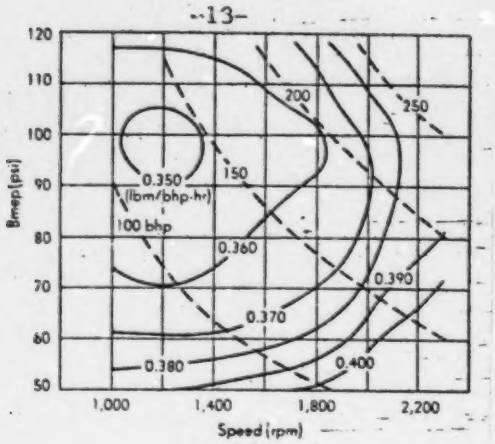
Table 1 - Diesel Trucks

Truck Type	Fuel Economy Decreases (30 mph Base)					
	Empty		Half Load		Full Load	
	40 mph	55 mph	40 mph	55 mph	40 mph	55 mph
2 Axle Single Unit	-16.1%	-20.4%	-17.1%	-25.0%	-17.6%	-28.1%
3 Axle Single Unit	- 4.3%	- 8.8%	- 8.1%	-23.9%	-14.3%	-37.4%
Tractor-Trailer	- 3.8%	-13.9%	- 9.1%	-26.3%	-13.9%	-34.3%

Table 2 - Gasoline Trucks

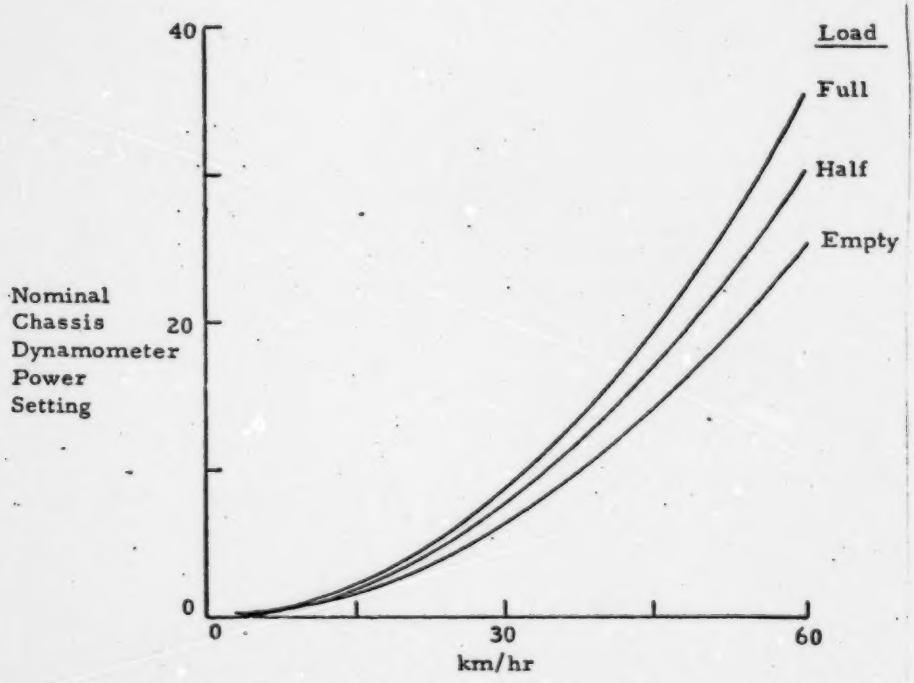
Truck Type	Fuel Economy Decreases (30 mph Base)					
	Empty		Half Load		Full Load	
	40 mph	55 mph	40 mph	55 mph	40 mph	55 mph
2 Axle Single Unit	+ .6%	-21.0%	- 2.2%	-27.6%	- 5.1%	-31.1%
3 Axle Single Unit	+ 9.3%	- 2.7%	+ 7.0%	-17.1%	+ .4%	-28.0%
Tractor-Trailer	+ .1%	-12.4%	- 5.7%	-21.5%	- 8.0%	----



Performance map of Mack Truck's Model END 864 diesel (V-8, 5x5 1/2 in, 864 in^3, open chamber)

(From Obert, Edward J. Internal Combustion Engines and Air Pollution, Intext Educational Publishers, New York, 1973. Pg. 54)

Figure 9



NOMINAL POWER RELATIONSHIPS FOR 9,000-KG GVW GASOLINE TRUCKS

(From SwRI final report "Study of Emissions from Heavy Duty Vehicles," Report No. EPA-460/3-76-012)

Figure 10

APPENDIX A

SWRI HEAVY DUTY TRUCK STEADY STATE TEST DATA LISTING (PAGE 1 OF 15)

*** FUEL CONSUMPTION IS MEASURED IN L/100KM.

TRUCK NUMBR	MODL YEAR	TYPE OF FUEL	GVW (LBS)	NUMBR OF AXLES	BODY STYLE	USAGE OF VEH.	TEST WT. (LBS)	ENG. TYPE	MFR. CODE	CID	TEST SER-IES	*** FUEL CONSUMP-TION	PCT RACK TRAVEL	MPH	RPM	MPG
1	70	1	16500	1	9	11	7500	V-8	5	318	1	110.59	19.0	5	2275	2.13
1	70	1	16500	1	9	11	7500	V-8	5	318	1	51.19	18.8	10	2300	4.59
1	70	1	16500	1	9	11	7500	V-8	5	318	1	29.86	18.2	15	1700	7.88
1	70	1	16500	1	9	11	7500	V-8	5	318	1	28.17	18.3	20	2300	8.35
1	70	1	16500	1	9	11	7500	V-8	5	318	1	19.36	16.3	30	2075	12.15
1	70	1	16500	1	9	11	7500	V-8	5	318	1	22.87	13.8	40	2700	10.28
1	70	1	16500	1	9	11	7500	V-8	5	318	1	30.70	7.8	55	3700	7.66
1	70	1	16500	1	9	11	11600	V-8	5	318	2	96.52	19.3	5	2325	2.44
1	70	1	16500	1	9	11	11600	V-8	5	318	2	51.75	19.0	10	2350	4.54
1	70	1	16500	1	9	11	11600	V-8	5	318	2	30.36	18.0	15	1725	7.75
1	70	1	16500	1	9	11	11600	V-8	5	318	2	27.40	18.2	20	2300	8.58
1	70	1	16500	1	9	11	11600	V-8	5	318	2	20.57	15.7	30	2075	11.43
1	70	1	16500	1	9	11	11600	V-8	5	318	2	22.97	13.0	40	2700	10.24
1	70	1	16500	1	9	11	11600	V-8	5	318	2	31.72	7.2	55	3700	7.41
1	70	1	16500	1	9	11	16200	V-8	5	318	3	102.12	19.1	5	2325	2.30
1	70	1	16500	1	9	11	16200	V-8	5	318	3	51.77	18.9	10	2350	4.54
1	70	1	16500	1	9	11	16200	V-8	5	318	3	30.59	18.0	15	1725	7.69
1	70	1	16500	1	9	11	16200	V-8	5	318	3	28.65	17.5	20	2275	8.21
1	70	1	16500	1	9	11	16200	V-8	5	318	3	21.04	15.5	30	2025	11.18
1	70	1	16500	1	9	11	16200	V-8	5	318	3	26.21	11.3	40	2700	8.97
1	70	1	16500	1	9	11	16200	V-8	5	318	3	33.03	5.5	55	3700	7.12
2	74	1	23000	1	9	7	12200	V-8	1	366	1	101.37	18.4	5	1800	2.32
2	74	1	23000	1	9	7	12200	V-8	1	366	1	59.78	18.0	10	1950	3.93
2	74	1	23000	1	9	7	12200	V-8	1	366	1	36.91	17.1	15	1600	6.37
2	74	1	23000	1	9	7	12200	V-8	1	366	1	38.53	16.6	20	2150	6.10
2	74	1	23000	1	9	7	12200	V-8	1	366	1	30.26	14.0	30	2000	7.77
2	74	1	23000	1	9	7	12200	V-8	1	366	1	31.74	12.1	40	2250	7.41
2	74	1	23000	1	9	7	12200	V-8	1	366	1	38.71	8.0	55	3175	6.08
2	74	1	23000	1	9	7	16000	V-8	1	366	2	105.14	18.3	5	1800	2.24
2	74	1	23000	1	9	7	16000	V-8	1	366	2	59.12	17.8	10	1900	3.98
2	74	1	23000	1	9	7	16000	V-8	1	366	2	37.96	16.5	15	1600	6.20
2	74	1	23000	1	9	7	16000	V-8	1	366	2	37.42	16.8	20	2150	6.29
2	74	1	23000	1	9	7	16000	V-8	1	366	2	28.79	13.8	30	2000	8.17
2	74	1	23000	1	9	7	16000	V-8	1	366	2	31.00	11.6	40	2250	7.59
2	74	1	23000	1	9	7	16000	V-8	1	366	2	39.00	8.0	55	3150	6.03
2	74	1	23000	1	9	7	20000	V-8	1	366	3	105.66	18.3	5	1800	2.23
2	74	1	23000	1	9	7	20000	V-8	1	366	3	58.84	17.0	10	1900	4.00
2	74	1	23000	1	9	7	20000	V-8	1	366	3	38.18	16.0	15	1600	6.16
2	74	1	23000	1	9	7	20000	V-8	1	366	3	39.53	16.5	20	2150	5.95
2	74	1	23000	1	9	7	20000	V-8	1	366	3	32.92	13.0	30	2000	7.14
2	74	1	23000	1	9	7	20000	V-8	1	366	3	34.19	10.7	40	2250	6.88
2	74	1	23000	1	9	7	20000	V-8	1	366	3	43.24	7.0	55	3150	5.44

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Coding

Type of Fuel:

Code	Fuel
1	gas
2	diesel
3	other

Number of Axles:

Code	No. of Axles
1	two axle truck
2	three axle truck
3	four axle combination (2 axles on truck and 2 on full trailer)
4	three axle combination
5	four axle combination (2 axles on tractor and 2 on trailer)
6	four axle combination (3 axles on tractor and 1 on trailer)
7	five axle combination (3 axles on tractor and 2 on trailer)
8	six axle combination (3 axles on tractor, 1 on trailer, and 2 on full trailer)
9	Other
blank	Not answered

Usage of Vehicle:

Code	Usage of Vehicle
01	Agriculture
02	Forestry
03	Mining
04	Construction
05	Manufacturing
06	Wholesale and/or Retail
07	For-hire
08	Personal transportation
09	Utilities
10	Services
11	Other
blank	Not answered

Manufacturer Code:

	Manufacturer
1	Chevrolet
2	Ford
3	International Harvester
4	GMC
5	Dodge
6	Willis
7	Mack
8	White Series (Freightliner, Kew, etc.)
9	Caterpillar
10	Cummins
11	Detroit Diesel
12	All others

Test Series Number:

1	empty weight
2	half payload
3	rated GVW

SWRI HEAVY DUTY TRUCK STEADY STATE TEST DATA LISTING (PAGE 2 OF 15)

*** FUEL CONSUMPTION IS MEASURED IN L/100KM.

TRUCK NUMBR	MODL YEAR	TYPE OF FUEL	GVW (LBS)	NUMBR OF AXLES	BODY STYLE	USAGE OF VEH.	TEST WT. (LBS)	ENG. TYPE	MFR. CODE	CID	TEST SERIES	*** FUEL CONSUMPTION	PCT RACK TRAVEL	MPH	RPM	MPG
3	73	1	23000	1	9	7	11900	V-8	2	361	1	97.13	19.0	5	1800	2.42
3	73	1	23000	1	9	7	11900	V-8	2	361	1	65.86	19.0	10	2200	3.57
3	73	1	23000	1	9	7	11900	V-8	2	361	1	32.27	17.8	15	1800	7.29
3	73	1	23000	1	9	7	11900	V-8	2	361	1	38.43	17.8	20	2400	6.12
3	73	1	23000	1	9	7	11900	V-8	2	361	1	29.29	15.5	30	2350	8.03
3	73	1	23000	1	9	7	11900	V-8	2	361	1	26.87	12.0	40	2150	8.75
3	73	1	23000	1	9	7	11900	V-8	2	361	1	31.78	7.6	55	2950	7.40
3	73	1	23000	1	9	7	16000	V-8	2	361	2	98.11	19.1	5	1800	2.40
3	73	1	23000	1	9	7	16000	V-8	2	361	2	64.97	18.6	10	2200	3.62
3	73	1	23000	1	9	7	16000	V-8	2	361	2	35.85	17.6	15	1800	6.56
3	73	1	23000	1	9	7	16000	V-8	2	361	2	38.77	17.6	20	2400	6.07
3	73	1	23000	1	9	7	16000	V-8	2	361	2	30.45	16.4	30	2400	7.72
3	73	1	23000	1	9	7	16000	V-8	2	361	2	28.43	12.7	40	2100	8.27
3	73	1	23000	1	9	7	16000	V-8	2	361	2	33.98	8.5	55	2900	6.92
3	73	1	23000	1	9	7	20000	V-8	2	361	3	100.10	19.2	5	1750	2.35
3	73	1	23000	1	9	7	20000	V-8	2	361	3	65.96	19.0	10	2200	3.57
3	73	1	23000	1	9	7	20000	V-8	2	361	3	36.75	17.2	15	1850	6.40
3	73	1	23000	1	9	7	20000	V-8	2	361	3	39.98	17.5	20	2400	5.88
3	73	1	23000	1	9	7	20000	V-8	2	361	3	31.25	14.5	30	2350	7.53
3	73	1	23000	1	9	7	20000	V-8	2	361	3	29.92	11.0	40	2150	7.86
3	73	1	23000	1	9	7	20000	V-8	2	361	3	36.43	4.5	55	2950	6.46
4	75	1	22500	1	9	7	11600	V-8	3	345	1	71.35	20.0	5	1700	3.30
4	75	1	22500	1	9	7	11600	V-8	3	345	1	44.88	20.4	10	1850	5.24
4	75	1	22500	1	9	7	11600	V-8	3	345	1	28.47	19.2	15	1700	8.26
4	75	1	22500	1	9	7	11600	V-8	3	345	1	30.49	19.0	20	2225	7.71
4	75	1	22500	1	9	7	11600	V-8	3	345	1	25.75	15.5	30	2000	9.13
4	75	1	22500	1	9	7	11600	V-8	3	345	1	24.87	12.7	40	2150	9.46
4	75	1	22500	1	9	7	11600	V-8	3	345	1	33.38	8.5	55	2950	7.05
4	75	1	22500	1	9	7	16000	V-8	3	345	2	65.92	20.0	5	1725	3.57
4	75	1	22500	1	9	7	16000	V-8	3	345	2	42.95	20.6	10	1800	5.48
4	75	1	22500	1	9	7	16000	V-8	3	345	2	28.58	19.5	15	1675	8.23
4	75	1	22500	1	9	7	16000	V-8	3	345	2	31.29	18.5	20	2225	7.52
4	75	1	22500	1	9	7	16000	V-8	3	345	2	26.19	15.0	30	2025	8.98
4	75	1	22500	1	9	7	16000	V-8	3	345	2	27.66	12.0	40	2175	8.50
4	75	1	22500	1	9	7	16000	V-8	3	345	2	38.30	7.0	55	2925	6.14
4	75	1	22500	1	9	7	20000	V-8	3	345	3	73.31	20.0	5	1760	3.21
4	75	1	22500	1	9	7	20000	V-8	3	345	3	47.37	20.5	10	1880	4.97
4	75	1	22500	1	9	7	20000	V-8	3	345	3	28.78	19.5	15	1650	8.17
4	75	1	22500	1	9	7	20000	V-8	3	345	3	31.13	18.0	20	2300	7.56
4	75	1	22500	1	9	7	20000	V-8	3	345	3	25.73	15.0	30	2000	9.14
4	75	1	22500	1	9	7	20000	V-8	3	345	3	27.00	11.0	40	2175	8.71
4	75	1	22500	1	9	7	20000	V-8	3	345	3	38.34	5.5	55	3000	6.13

SWRI HEAVY DUTY TRUCK STEADY STATE TEST DATA LISTING (PAGE 3 OF 15)

*** FUEL CONSUMPTION IS MEASURED IN L/100KM.

TRUCK NUMBR	MODL YEAR	TYPE OF FUEL	GVW (LBS)	NUMBR OF AXLES	BODY STYLE	USAGE OF VEH.	TEST WT. (LBS)	ENG. TYPE	MFR. CODE	CID	TEST SER-IES	*** FUEL CONSUMP-TION	PCT RACK TRAVEL	MPH	RPM	MPG
5	65	1	19500	1	9	6	11200	I-6	1	292	1	96.85	20.2	5	2520	2.43
5	65	1	19500	1	9	6	11200	I-6	1	292	1	49.41	19.6	10	2440	4.76
5	65	1	19500	1	9	6	11200	I-6	1	292	1	27.32	17.8	15	1720	8.61
5	65	1	19500	1	9	6	11200	I-6	1	292	1	26.63	17.5	20	2250	8.83
5	65	1	19500	1	9	6	11200	I-6	1	292	1	21.00	13.8	30	1950	11.20
5	65	1	19500	1	9	6	11200	I-6	1	292	1	24.39	12.2	40	2525	9.64
5	65	1	19500	1	9	6	11200	I-6	1	292	1	33.73	8.1	55	3425	6.97
5	65	1	19500	1	9	6	16000	I-6	1	292	2	94.73	20.0	5	2400	2.48
5	65	1	19500	1	9	6	16000	I-6	1	292	2	47.46	19.4	10	2400	4.96
5	65	1	19500	1	9	6	16000	I-6	1	292	2	26.12	18.6	15	1760	9.00
5	65	1	19500	1	9	6	16000	I-6	1	292	2	26.19	17.8	20	2200	8.98
5	65	1	19500	1	9	6	16000	I-6	1	292	2	21.09	13.6	30	1920	11.15
5	65	1	19500	1	9	6	16000	I-6	1	292	2	25.25	11.5	40	2525	9.31
5	65	1	19500	1	9	6	16000	I-6	1	292	2	41.48	7.0	55	3400	5.67
5	65	1	19500	1	9	6	20000	I-6	1	292	3	86.05	20.0	5	2460	2.73
5	65	1	19500	1	9	6	20000	I-6	1	292	3	51.08	19.5	10	2400	4.60
5	65	1	19500	1	9	6	20000	I-6	1	292	3	29.57	17.3	15	1800	7.95
5	65	1	19500	1	9	6	20000	I-6	1	292	3	25.66	17.4	20	2250	9.17
5	65	1	19500	1	9	6	20000	I-6	1	292	3	21.83	13.0	30	2000	10.77
5	65	1	19500	1	9	6	20000	I-6	1	292	3	27.26	10.0	40	2575	8.63
5	65	1	19500	1	9	6	20000	I-6	1	292	3	44.48	3.0	55	3400	5.29
6	74	1	23160	1	9	7	11500	V-8	2	391	1	109.40	19.8	5	2025	2.15
6	74	1	23160	1	9	7	11500	V-8	2	391	1	63.90	19.2	10	2175	3.68
6	74	1	23160	1	9	7	11500	V-8	2	391	1	36.50	19.5	15	1800	6.44
6	74	1	23160	1	9	7	11500	V-8	2	391	1	38.60	18.3	20	2425	6.09
6	74	1	23160	1	9	7	11500	V-8	2	391	1	30.50	16.2	30	2450	7.71
6	74	1	23160	1	9	7	11500	V-8	2	391	1	26.70	13.3	40	2200	8.81
6	74	1	23160	1	9	7	11500	V-8	2	391	1	33.10	8.8	55	3000	7.11
6	74	1	23160	1	9	7	16000	V-8	2	391	2	118.30	19.6	5	2050	1.99
6	74	1	23160	1	9	7	16000	V-8	2	391	2	68.20	19.2	10	2200	3.45
6	74	1	23160	1	9	7	16000	V-8	2	391	2	39.10	18.7	15	1825	6.02
6	74	1	23160	1	9	7	16000	V-8	2	391	2	41.80	17.8	20	2450	5.63
6	74	1	23160	1	9	7	16000	V-8	2	391	2	33.50	16.0	30	2450	7.02
6	74	1	23160	1	9	7	16000	V-8	2	391	2	30.00	12.5	40	2200	7.84
6	74	1	23160	1	9	7	16000	V-8	2	391	2	37.60	7.0	55	3000	6.26
6	74	1	23160	1	9	7	20000	V-8	2	391	3	104.30	19.8	5	2025	2.26
6	74	1	23160	1	9	7	20000	V-8	2	391	3	67.10	19.3	10	2200	3.51
6	74	1	23160	1	9	7	20000	V-8	2	391	3	37.80	18.8	15	1775	6.22
6	74	1	23160	1	9	7	20000	V-8	2	391	3	41.60	18.1	20	2425	5.65
6	74	1	23160	1	9	7	20000	V-8	2	391	3	34.50	15.5	30	2425	6.82
6	74	1	23160	1	9	7	20000	V-8	2	391	3	30.70	11.5	40	2175	7.66
6	74	1	23160	1	9	7	20000	V-8	2	391	3	41.90	5.5	55	3000	5.61

SWRI HEAVY DUTY TRUCK STEADY STATE TEST DATA LISTING (PAGE 4 OF 15)

*** FUEL CONSUMPTION IS MEASURED IN L/100KM.

TRUCK NUMBR	MODL YEAR	TYPE OF FUEL	GVW (LBS)	NUMBR OF AXLES	BODY STYLE	USAGE OF VEH.	TEST WT. (LBS)	ENG. TYPE	MFR. CODE	CID	TEST SERIES	*** FUEL CONSUMPTION	PCT RACK TRAVEL	MPH	RPM	MPG
7	74	1	23660	1	9	7	11600	V-8	3	392	1	140.20	19.0	5	2240	1.68
7	74	1	23660	1	9	7	11600	V-8	3	392	1	80.70	18.0	10	2360	2.91
7	74	1	23660	1	9	7	11600	V-8	3	392	1	51.10	17.3	15	2120	4.60
7	74	1	23660	1	9	7	11600	V-8	3	392	1	52.90	17.0	20	2800	4.45
7	74	1	23660	1	9	7	11600	V-8	3	392	1	37.40	15.0	30	2560	6.29
7	74	1	23660	1	9	7	11600	V-8	3	392	1	31.20	11.5	40	2400	7.54
7	74	1	23660	1	9	7	11600	V-8	3	392	1	44.00	7.5	55	3240	5.35
7	74	1	23660	1	9	7	16000	V-8	3	392	2	147.40	18.6	5	2320	1.60
7	74	1	23660	1	9	7	16000	V-8	3	392	2	80.80	18.1	10	2320	2.91
7	74	1	23660	1	9	7	16000	V-8	3	392	2	52.70	17.2	15	2160	4.46
7	74	1	23660	1	9	7	16000	V-8	3	392	2	55.30	16.8	20	2840	4.25
7	74	1	23660	1	9	7	16000	V-8	3	392	2	39.20	14.5	30	2560	6.00
7	74	1	23660	1	9	7	16000	V-8	3	392	2	34.00	10.5	40	2400	6.92
7	74	1	23660	1	9	7	16000	V-8	3	392	2	47.30	6.8	55	3240	4.97
7	74	1	23660	1	9	7	20000	V-8	3	392	3	148.80	18.4	5	2320	1.58
7	74	1	23660	1	9	7	20000	V-8	3	392	3	80.40	18.0	10	2360	2.93
7	74	1	23660	1	9	7	20000	V-8	3	392	3	51.80	17.2	15	2120	4.54
7	74	1	23660	1	9	7	20000	V-8	3	392	3	55.50	16.5	20	2840	4.24
7	74	1	23660	1	9	7	20000	V-8	3	392	3	39.80	14.2	30	2560	5.91
7	74	1	23660	1	9	7	20000	V-8	3	392	3	35.50	9.8	40	2400	6.63
7	74	1	23660	1	9	7	20000	V-8	3	392	3	50.90	6.3	55	3260	4.62
8	67	1	23000	1	9	10	11500	V-8	5	361	1	104.25	20.0	5	2100	2.26
8	67	1	23000	1	9	10	11500	V-8	5	361	1	52.98	19.8	10	1960	4.44
8	67	1	23000	1	9	10	11500	V-8	5	361	1	31.02	19.4	15	1520	7.58
8	67	1	23000	1	9	10	11500	V-8	5	361	1	31.21	18.6	20	2000	7.54
8	67	1	23000	1	9	10	11500	V-8	5	361	1	24.47	15.3	30	1840	9.61
8	67	1	23000	1	9	10	11500	V-8	5	361	1	27.06	14.0	40	2440	8.69
8	67	1	23000	1	9	10	11500	V-8	5	361	1	34.10	9.9	55	3300	6.90
8	67	1	23000	1	9	10	16000	V-8	5	361	2	104.30	20.1	5	2160	2.26
8	67	1	23000	1	9	10	16000	V-8	5	361	2	54.19	19.6	10	2000	4.34
8	67	1	23000	1	9	10	16000	V-8	5	361	2	30.94	18.5	15	1520	7.60
8	67	1	23000	1	9	10	16000	V-8	5	361	2	32.14	18.3	20	2040	7.32
8	67	1	23000	1	9	10	16000	V-8	5	361	2	25.77	14.8	30	1860	9.13
8	67	1	23000	1	9	10	16000	V-8	5	361	2	28.36	13.0	40	2420	8.29
8	67	1	23000	1	9	10	16000	V-8	5	361	2	38.41	8.5	55	3320	6.12
8	67	1	23000	1	9	10	20000	V-8	5	361	3	107.45	20.0	5	2200	2.19
8	67	1	23000	1	9	10	20000	V-8	5	361	3	54.97	19.8	10	2040	4.28
8	67	1	23000	1	9	10	20000	V-8	5	361	3	31.70	19.1	15	1540	7.42
8	67	1	23000	1	9	10	20000	V-8	5	361	3	32.61	18.1	20	2040	7.21
8	67	1	23000	1	9	10	20000	V-8	5	361	3	25.22	14.6	30	1840	9.33
8	67	1	23000	1	9	10	20000	V-8	5	361	3	29.14	12.2	40	2440	8.07
8	67	1	23000	1	9	10	20000	V-8	5	361	3	40.29	7.5	55	2320	5.84

SWRI HEAVY DUTY TRUCK STEADY STATE TEST DATA LISTING (PAGE 5 OF 15)

*** FUEL CONSUMPTION IS MEASURED IN L/100KM.

TRUCK NUMBR	MODL YEAR	TYPE OF FUEL	GVW (LBS)	NUMBR OF AXLES	BODY STYLE	USAGE OF VEH.	TEST WT. (LBS)	ENG. TYPE	MFR. CODE	CID	TEST SER-IES	*** FUEL CONSUMP-TION	PCT RACK TRAVEL	MPH	RPM	MPG
9	71	1	40000	2	6	6	16000	V-8	3	345	1	71.33	21.1	5	1800	3.30
9	71	1	40000	2	6	6	16000	V-8	3	345	1	44.66	20.0	10	1900	5.27
9	71	1	40000	2	6	6	16000	V-8	3	345	1	29.28	20.0	15	1700	8.03
9	71	1	40000	2	6	6	16000	V-8	3	345	1	30.00	19.0	20	2250	7.84
9	71	1	40000	2	6	6	16000	V-8	3	345	1	23.69	16.8	30	2000	9.93
9	71	1	40000	2	6	6	16000	V-8	3	345	1	25.81	12.0	40	2175	9.11
9	71	1	40000	2	6	6	16000	V-8	3	345	1	37.12	5.2	55	3025	6.34
9	71	1	40000	2	6	6	27500	V-8	3	345	2	81.18	21.0	5	1900	2.90
9	71	1	40000	2	6	6	27500	V-8	3	345	2	43.67	20.8	10	1950	5.39
9	71	1	40000	2	6	6	27500	V-8	3	345	2	29.38	19.6	15	1700	8.01
9	71	1	40000	2	6	6	27500	V-8	3	345	2	31.59	18.8	20	2200	7.45
9	71	1	40000	2	6	6	27500	V-8	3	345	2	26.00	15.5	30	2025	9.05
9	71	1	40000	2	6	6	27500	V-8	3	345	2	28.20	10.0	40	2200	8.34
9	71	1	40000	2	6	6	27500	V-8	3	345	2	44.89	2.6	55	2975	5.24
9	71	1	40000	2	6	6	40500	V-8	3	345	3	77.96	21.0	5	1900	3.02
9	71	1	40000	2	6	6	40500	V-8	3	345	3	42.36	20.6	10	1900	5.55
9	71	1	40000	2	6	6	40500	V-8	3	345	3	28.80	19.6	15	1700	8.17
9	71	1	40000	2	6	6	40500	V-8	3	345	3	31.81	18.5	20	2225	7.39
9	71	1	40000	2	6	6	40500	V-8	3	345	3	26.76	13.5	30	2000	8.79
9	71	1	40000	2	6	6	40500	V-8	3	345	3	31.65	8.0	40	2150	7.43
9	71	1	40000	2	6	6	40500	V-8	3	345	3	44.97	0.5	50	2750	5.23
10	74	1	56000	4	9	7	16000	V-8	3	478	1	150.09	19.1	5	2400	1.57
10	74	1	56000	4	9	7	16000	V-8	3	478	1	96.19	18.3	10	2550	2.45
10	74	1	56000	4	9	7	16000	V-8	3	478	1	54.71	18.1	15	2150	4.30
10	74	1	56000	4	9	7	16000	V-8	3	478	1	42.27	17.9	20	2025	5.56
10	74	1	56000	4	9	7	16000	V-8	3	478	1	32.47	15.1	30	1800	7.24
10	74	1	56000	4	9	7	16000	V-8	3	478	1	37.78	12.8	40	2400	6.23
10	74	1	56000	4	9	7	16000	V-8	3	478	1	51.23	6.0	55	2825	4.59
10	74	1	56000	4	9	7	27500	V-8	3	478	2	150.18	19.1	5	2425	1.57
10	74	1	56000	4	9	7	27500	V-8	3	478	2	95.57	18.3	10	2500	2.46
10	74	1	56000	4	9	7	27500	V-8	3	478	2	54.67	18.1	15	2150	4.30
10	74	1	56000	4	9	7	27500	V-8	3	478	2	44.48	17.4	20	2050	5.29
10	74	1	56000	4	9	7	27500	V-8	3	478	2	33.61	13.5	30	1825	7.00
10	74	1	56000	4	9	7	27500	V-8	3	478	2	41.99	11.0	40	2400	5.60
10	74	1	56000	4	9	7	27500	V-8	3	478	2	47.46	4.5	50	2600	4.96
10	74	1	56000	4	9	7	40500	V-8	3	478	3	159.51	19.0	5	2375	1.47
10	74	1	56000	4	9	7	40500	V-8	3	478	3	95.42	18.5	10	2500	2.46
10	74	1	56000	4	9	7	40500	V-8	3	478	3	47.34	18.4	15	2125	4.97
10	74	1	56000	4	9	7	40500	V-8	3	478	3	44.00	17.3	20	2000	5.35
10	74	1	56000	4	9	7	40500	V-8	3	478	3	35.82	14.2	30	1800	6.57
10	74	1	56000	4	9	7	40500	V-8	3	478	3	46.11	9.5	40	2400	5.10
10	74	1	56000	4	9	7	40500	V-8	3	478	3	53.65	4.5	50	2600	4.38

SWRI HEAVY DUTY TRUCK STEADY STATE TEST DATA LISTING (PAGE 6 OF 15)

••• FUEL CONSUMPTION IS MEASURED IN L/100KM.

TRUCK NUMBR	MODL YEAR	TYPE OF FUEL	GVW (LBS)	NUMBR OF AXLES	BODY STYLE	USAGE OF VEH.	TEST WT. (LBS)	ENG. TYPE	MFR. CODE	CID	TEST SERIES	••• FUEL CONSUMPTION	PCT RACK TRAVEL	MPH	RPM	MPG
11	74	1	38500	1	2	4	11500	V-8	1	366	1	106.28	17.6	5	1900	2.21
11	74	1	38500	1	2	4	11500	V-8	1	366	1	63.14	18.2	10	2300	3.73
11	74	1	38500	1	2	4	11500	V-8	1	366	1	48.80	17.7	15	2375	4.82
11	74	1	38500	1	2	4	11500	V-8	1	366	1	38.32	17.2	20	2300	6.14
11	74	1	38500	1	2	4	11500	V-8	1	366	1	32.82	16.1	30	2550	7.17
11	74	1	38500	1	2	4	11500	V-8	1	366	1	29.03	13.5	40	2500	8.09
11	74	1	38500	1	2	4	11500	V-8	1	366	1	28.10	11.0	55	3000	8.37
11	74	1	38500	1	2	4	27500	V-8	1	366	2	112.54	17.5	5	1950	2.09
11	74	1	38500	1	2	4	27500	V-8	1	366	2	69.37	18.0	10	2350	3.39
11	74	1	38500	1	2	4	27500	V-8	1	366	2	50.91	17.6	15	2400	4.62
11	74	1	38500	1	2	4	27500	V-8	1	366	2	37.77	16.8	20	2250	6.23
11	74	1	38500	1	2	4	27500	V-8	1	366	2	34.50	14.5	30	2450	6.82
11	74	1	38500	1	2	4	27500	V-8	1	366	2	32.87	11.0	40	2500	7.16
11	74	1	38500	1	2	4	27500	V-8	1	366	2	37.60	5.3	53	2800	6.26
11	74	1	38500	1	2	4	38500	V-8	1	366	3	100.42	17.5	5	1850	2.34
11	74	1	38500	1	2	4	38500	V-8	1	366	3	54.18	17.8	10	2300	4.34
11	74	1	38500	1	2	4	38500	V-8	1	366	3	47.50	17.5	15	2350	4.95
11	74	1	38500	1	2	4	38500	V-8	1	366	3	40.17	16.5	20	2300	5.86
11	74	1	38500	1	2	4	38500	V-8	1	366	3	36.51	13.5	30	2500	6.44
11	74	1	38500	1	2	4	38500	V-8	1	366	3	37.50	9.0	40	2450	6.27
11	74	1	38500	1	2	4	38500	V-8	1	366	3	41.44	6.0	50	2650	5.68
12	72	1	45000	4	9	7	16000	V-8	2	477	1	144.86	20.5	5	2350	1.62
12	72	1	45000	4	9	7	16000	V-8	2	477	1	90.17	20.0	10	2500	2.61
12	72	1	45000	4	9	7	16000	V-8	2	477	1	51.30	19.5	15	2050	4.58
12	72	1	45000	4	9	7	16000	V-8	2	477	1	40.28	18.8	20	2025	5.84
12	72	1	45000	4	9	7	16000	V-8	2	477	1	42.88	16.6	30	2500	5.49
12	72	1	45000	4	9	7	16000	V-8	2	477	1	41.82	12.4	40	2450	5.62
12	72	1	45000	4	9	7	16000	V-8	2	477	1	57.95	5.0	55	2900	4.06
12	72	1	45000	4	9	7	27500	V-8	2	477	2	154.48	20.3	5	2425	1.52
12	72	1	45000	4	9	7	27500	V-8	2	477	2	94.05	19.7	10	2600	2.50
12	72	1	45000	4	9	7	27500	V-8	2	477	2	53.99	19.5	15	2150	4.36
12	72	1	45000	4	9	7	27500	V-8	2	477	2	44.02	18.4	20	2000	5.34
12	72	1	45000	4	9	7	27500	V-8	2	477	2	45.38	15.7	30	2550	5.18
12	72	1	45000	4	9	7	27500	V-8	2	477	2	43.86	11.2	40	2500	5.36
12	72	1	45000	4	9	7	27500	V-8	2	477	2	63.87	3.0	53	2800	3.68
12	72	1	45000	4	9	7	40500	V-8	2	477	3	134.57	20.5	5	2300	1.75
12	72	1	45000	4	9	7	40500	V-8	2	477	3	82.89	20.0	10	2500	2.84
12	72	1	45000	4	9	7	40500	V-8	2	477	3	50.45	19.5	15	2050	4.66
12	72	1	45000	4	9	7	40500	V-8	2	477	3	43.29	18.4	20	2000	5.43
12	72	1	45000	4	9	7	40500	V-8	2	477	3	47.11	15.3	30	2500	4.99
12	72	1	45000	4	9	7	40500	V-8	2	477	3	51.03	9.4	40	2450	4.61
12	72	1	45000	4	9	7	40500	V-8	2	477	3	63.67	2.0	48	2450	3.69

SWRI HEAVY DUTY TRUCK STEADY STATE TEST DATA LISTING (PAGE 7 OF 15)

*** FUEL CONSUMPTION IS MEASURED IN L/100KM.

TRUCK NUMBR	MODL YEAR	TYPE OF FUEL	GVW (LBS)	NUMBR OF AXLES	BODY STYLE	USAGE OF VEH.	TEST WT. (LBS)	ENG. TYPE	MFR. CODE	CID	TEST SER-IES	*** FUEL CONSUMP-TION	PCT RACK TRAVEL	MPH	RPM	MPG
13	74	1	45000	4	9	7	16000	V-8	4	427	1	137.51	18.9	5	2300	1.71
13	74	1	45000	4	9	7	16000	V-8	4	427	1	80.19	18.6	10	2475	2.93
13	74	1	45000	4	9	7	16000	V-8	4	427	1	61.43	18.3	15	2725	3.83
13	74	1	45000	4	9	7	16000	V-8	4	427	1	48.15	17.9	20	2775	4.88
13	74	1	45000	4	9	7	16000	V-8	4	427	1	43.01	15.6	30	3000	5.47
13	74	1	45000	4	9	7	16000	V-8	4	427	1	38.30	13.2	40	2850	6.14
13	74	1	45000	4	9	7	16000	V-8	4	427	1	40.08	6.0	55	2850	5.87
13	74	1	45000	4	9	7	27500	V-8	4	427	2	143.34	18.7	5	2300	1.64
13	74	1	45000	4	9	7	27500	V-8	4	427	2	82.50	18.2	10	2500	2.85
13	74	1	45000	4	9	7	27500	V-8	4	427	2	65.49	17.8	15	2750	3.59
13	74	1	45000	4	9	7	27500	V-8	4	427	2	50.07	17.3	20	2790	4.70
13	74	1	45000	4	9	7	27500	V-8	4	427	2	45.24	15.7	30	3000	5.20
13	74	1	45000	4	9	7	27500	V-8	4	427	2	40.99	11.5	40	2850	5.74
13	74	1	45000	4	9	7	27500	V-8	4	427	2	53.38	3.5	55	2850	4.41
13	74	1	45000	4	9	7	40500	V-8	4	427	3	131.54	19.0	5	2300	1.79
13	74	1	45000	4	9	7	40500	V-8	4	427	3	82.11	18.5	10	2500	2.86
13	74	1	45000	4	9	7	40500	V-8	4	427	3	64.40	18.0	15	2750	3.65
13	74	1	45000	4	9	7	40500	V-8	4	427	3	54.45	17.0	20	2790	4.32
13	74	1	45000	4	9	7	40500	V-8	4	427	3	48.88	14.5	30	3000	4.81
13	74	1	45000	4	9	7	40500	V-8	4	427	3	47.47	9.7	40	2850	4.95
13	74	1	45000	4	9	7	40500	V-8	4	427	3	55.72	2.0	50	2550	4.22
14	69	1	43500	4	9	6	16000	V-8	2	391	1	173.44	18.0	5	2600	1.36
14	69	1	43500	4	9	6	16000	V-8	2	391	1	99.55	17.5	10	2700	2.36
14	69	1	43500	4	9	6	16000	V-8	2	391	1	64.86	17.3	15	2500	3.63
14	69	1	43500	4	9	6	16000	V-8	2	391	1	50.23	16.3	20	2450	4.68
14	69	1	43500	4	9	6	16000	V-8	2	391	1	41.50	14.3	30	2250	5.67
14	69	1	43500	4	9	6	16000	V-8	2	391	1	43.23	9.8	40	2850	5.44
14	69	1	43500	4	9	6	16000	V-8	2	391	1	40.99	7.5	55	2800	5.74
14	69	1	43500	4	9	6	27500	V-8	2	391	2	171.46	18.0	5	2700	1.37
14	69	1	43500	4	9	6	27500	V-8	2	391	2	101.60	17.5	10	2750	2.31
14	69	1	43500	4	9	6	27500	V-8	2	391	2	63.64	17.4	15	2500	3.70
14	69	1	43500	4	9	6	27500	V-8	2	391	2	50.85	16.5	20	2400	4.63
14	69	1	43500	4	9	6	27500	V-8	2	391	2	44.33	12.0	30	2200	5.31
14	69	1	43500	4	9	6	27500	V-8	2	391	2	54.50	8.0	40	2820	4.32
14	69	1	43500	4	9	6	27500	V-8	2	391	2	53.40	3.0	52	2600	4.40
14	69	1	43500	4	9	6	40500	V-8	2	391	3	204.88	17.5	5	2650	1.15
14	69	1	43500	4	9	6	40500	V-8	2	391	3	109.81	17.2	10	2725	2.14
14	69	1	43500	4	9	6	40500	V-8	2	391	3	64.77	17.0	15	2550	3.63
14	69	1	43500	4	9	6	40500	V-8	2	391	3	51.64	16.0	20	2450	4.55
14	69	1	43500	4	9	6	40500	V-8	2	391	3	47.55	10.5	30	2250	4.95
14	69	1	43500	4	9	6	40500	V-8	2	391	3	53.77	7.5	40	2850	4.37
14	69	1	43500	4	9	6	40500	V-8	2	391	3	58.39	1.5	48	2450	4.03

SWRI HEAVY DUTY TRUCK STEADY STATE TEST DATA LISTING (PAGE 8 OF 15)

*** FUEL CONSUMPTION IS MEASURED IN L/100KM.

TRUCK NUMBR	MODL YEAR	TYPE OF FUEL	GVW (LBS)	NUMBR OF AXLES	BODY STYLE	USAGE OF VEH.	TEST WT. (LBS)	ENG. TYPE	MFR. CODE	CID	TEST SER-IES	*** FUEL CONSUMP-TION	PCT RACK TRAVEL	MPH	RPM	MPG
15	74	1	44500	2	20	4	18130	V-8	4	427	1	118.97	19.8	5	2200	1.98
15	74	1	44500	2	20	4	18130	V-8	4	427	1	85.46	19.5	10	2650	2.75
15	74	1	44500	2	20	4	18130	V-8	4	427	1	77.14	18.4	15	3200	3.05
15	74	1	44500	2	20	4	18130	V-8	4	427	1	48.39	18.8	20	2550	4.86
15	74	1	44500	2	20	4	18130	V-8	4	427	1	44.71	16.3	30	3175	5.26
15	74	1	44500	2	20	4	18130	V-8	4	427	1	34.14	15.3	40	2500	6.89
15	74	1	44500	2	20	4	18130	V-8	4	427	1	34.09	12.0	55	2750	6.90
15	74	1	44500	2	20	4	27500	V-8	4	427	2	137.55	19.8	5	2250	1.71
15	74	1	44500	2	20	4	27500	V-8	4	427	2	90.40	19.3	10	2600	2.60
15	74	1	44500	2	20	4	27500	V-8	4	427	2	80.28	18.3	15	3250	2.93
15	74	1	44500	2	20	4	27500	V-8	4	427	2	52.68	18.4	20	2550	4.46
15	74	1	44500	2	20	4	27500	V-8	4	427	2	48.83	16.3	30	3200	4.82
15	74	1	44500	2	20	4	27500	V-8	4	427	2	37.11	13.9	40	2500	6.34
15	74	1	44500	2	20	4	27500	V-8	4	427	2	36.92	9.6	55	2750	6.37
15	74	1	44500	2	20	4	40500	V-8	4	427	3	142.24	19.7	5	2275	1.65
15	74	1	44500	2	20	4	40500	V-8	4	427	3	90.61	19.4	10	2600	2.60
15	74	1	44500	2	20	4	40500	V-8	4	427	3	80.86	18.3	15	3225	2.91
15	74	1	44500	2	20	4	40500	V-8	4	427	3	54.11	18.5	20	2575	4.35
15	74	1	44500	2	20	4	40500	V-8	4	427	3	51.06	16.2	30	3200	4.61
15	74	1	44500	2	20	4	40500	V-8	4	427	3	41.51	12.4	40	2550	5.67
15	74	1	44500	2	20	4	40500	V-8	4	427	3	49.65	6.0	55	2800	4.74
16	66	1	42000	2	20	4	16000	V-8	1	366	1	153.55	19.1	5	2750	1.53
16	66	1	42000	2	20	4	16000	V-8	1	366	1	84.18	18.9	10	2850	2.79
16	66	1	42000	2	20	4	16000	V-8	1	366	1	50.22	18.6	15	2550	4.68
16	66	1	42000	2	20	4	16000	V-8	1	366	1	39.40	17.7	20	2500	5.97
16	66	1	42000	2	20	4	16000	V-8	1	366	1	36.91	17.2	30	3025	6.37
16	66	1	42000	2	20	4	16000	V-8	1	366	1	31.10	15.0	40	2900	7.56
16	66	1	42000	2	20	4	16000	V-8	1	366	1	30.44	10.5	55	3050	7.73
16	66	1	42000	2	20	4	27500	V-8	1	366	2	155.01	19.0	5	2800	1.52
16	66	1	42000	2	20	4	27500	V-8	1	366	2	84.26	18.8	10	2900	2.79
16	66	1	42000	2	20	4	27500	V-8	1	366	2	49.69	18.5	15	2550	4.73
16	66	1	42000	2	20	4	27500	V-8	1	366	2	39.42	17.6	20	2500	5.97
16	66	1	42000	2	20	4	27500	V-8	1	366	2	37.24	16.8	30	3025	6.32
16	66	1	42000	2	20	4	27500	V-8	1	366	2	33.94	13.8	40	2950	6.93
16	66	1	42000	2	20	4	27500	V-8	1	366	2	45.86	7.5	55	3050	5.13
16	66	1	42000	2	20	4	40500	V-8	1	366	3	157.40	19.0	5	2750	1.49
16	66	1	42000	2	20	4	40500	V-8	1	366	3	84.31	18.7	10	2850	2.79
16	66	1	42000	2	20	4	40500	V-8	1	366	3	51.81	18.4	15	2550	4.54
16	66	1	42000	2	20	4	40500	V-8	1	366	3	41.28	17.2	20	2500	5.70
16	66	1	42000	2	20	4	40500	V-8	1	366	3	40.78	15.8	30	3025	5.77
16	66	1	42000	2	20	4	40500	V-8	1	366	3	38.33	11.8	40	2900	6.14
16	66	1	42000	2	20	4	40500	V-8	1	366	3	52.77	3.5	55	3050	4.46

SWRI HEAVY DUTY TRUCK STEADY STATE TEST DATA LISTING (PAGE 9 OF 15)

*** FUEL CONSUMPTION IS MEASURED IN L/100KM.

TRUCK NUMBR	MODL YEAR	TYPE OF FUEL	GVW (LBS)	NUMBR OF AXLES	BODY STYLE	USAGE OF VEH.	TEST WT. (LBS)	ENG. TYPE	MFR. CODE	CID	TEST SERIES	*** FUEL CONSUMPTION	PCT RACK TRAVEL	MPH	RPM	MPG
17	75	1	17500	1	9	7	8700	V-8	3	345	1	118.35	20.0	5	2350	1.99
17	75	1	17500	1	9	7	8700	V-8	3	345	1	61.42	19.5	10	2300	3.83
17	75	1	17500	1	9	7	8700	V-8	3	345	1	34.67	19.4	15	1750	6.78
17	75	1	17500	1	9	7	8700	V-8	3	345	1	35.60	17.8	20	2300	6.61
17	75	1	17500	1	9	7	8700	V-8	3	345	1	28.33	14.6	30	2100	8.30
17	75	1	17500	1	9	7	8700	V-8	3	345	1	25.53	10.8	40	2050	9.21
17	75	1	17500	1	9	7	8700	V-8	3	345	1	38.19	6.5	55	2800	6.16
17	75	1	17500	1	9	7	13000	V-8	3	345	2	117.06	20	5	2350	2.01
17	75	1	17500	1	9	7	13000	V-8	3	345	2	63.01	19.5	10	2300	3.73
17	75	1	17500	1	9	7	13000	V-8	3	345	2	33.40	19.3	15	1750	7.04
17	75	1	17500	1	9	7	13000	V-8	3	345	2	36.29	17.5	20	2300	6.48
17	75	1	17500	1	9	7	13000	V-8	3	345	2	29.01	14.2	30	2100	8.11
17	75	1	17500	1	9	7	13000	V-8	3	345	2	27.64	10.1	40	2050	8.51
17	75	1	17500	1	9	7	13000	V-8	3	345	2	42.57	4.5	55	2800	5.53
17	75	1	17500	1	9	7	17000	V-8	3	345	3	115.69	20.0	5	2350	2.03
17	75	1	17500	1	9	7	17000	V-8	3	345	3	62.21	19.5	10	2300	3.78
17	75	1	17500	1	9	7	17000	V-8	3	345	3	33.43	19.2	15	1750	7.04
17	75	1	17500	1	9	7	17000	V-8	3	345	3	37.36	17.5	20	2300	6.30
17	75	1	17500	1	9	7	17000	V-8	3	345	3	30.04	13.8	30	2125	7.83
17	75	1	17500	1	9	7	17000	V-8	3	345	3	28.73	9.4	40	2050	8.19
17	75	1	17500	1	9	7	17000	V-8	3	345	3	53.38	3.0	55	2800	4.41
1A	75	1	44000	4	9	7	16000	V-8	2	389	1	141.82	18.2	5	2425	1.66
1A	75	1	44000	4	9	7	16000	V-8	2	389	1	90.97	16.7	10	2600	2.59
1A	75	1	44000	4	9	7	16000	V-8	2	389	1	68.81	16.4	15	2850	3.42
1A	75	1	44000	4	9	7	16000	V-8	2	389	1	55.10	15.6	20	2800	4.27
1A	75	1	44000	4	9	7	16000	V-8	2	389	1	41.56	13.2	30	2600	5.66
1A	75	1	44000	4	9	7	16000	V-8	2	389	1	38.39	11.2	40	2950	6.13
1A	75	1	44000	4	9	7	16000	V-8	2	389	1	41.96	2.8	55	2950	5.61
1A	75	1	44000	4	9	7	27500	V-8	2	389	2	143.04	18.2	5	2450	1.64
1A	75	1	44000	4	9	7	27500	V-8	2	389	2	87.79	16.7	10	2575	2.68
1A	75	1	44000	4	9	7	27500	V-8	2	389	2	70.34	16.2	15	2875	3.34
1A	75	1	44000	4	9	7	27500	V-8	2	389	2	56.54	15.4	20	2825	4.16
1A	75	1	44000	4	9	7	27500	V-8	2	389	2	43.46	12.6	30	2600	5.41
1A	75	1	44000	4	9	7	27500	V-8	2	389	2	42.88	9.8	40	2950	5.49
1A	75	1	44000	4	9	7	27500	V-8	2	389	2	52.23	0.5	54	2900	4.50
1A	75	1	44000	4	9	7	44000	V-8	2	389	3	149.50	18.2	5	2450	1.57
1A	75	1	44000	4	9	7	44000	V-8	2	389	3	92.89	16.5	10	2600	2.53
1A	75	1	44000	4	9	7	44000	V-8	2	389	3	73.51	16.0	15	2900	3.20
1A	75	1	44000	4	9	7	44000	V-8	2	389	3	57.28	15.1	20	2825	4.11
1A	75	1	44000	4	9	7	44000	V-8	2	389	3	45.88	11.9	30	2600	5.13
1A	75	1	44000	4	9	7	44000	V-8	2	389	3	44.27	8.5	40	2950	5.31
1A	75	1	44000	4	9	7	44000	V-8	2	389	3	54.24	0.5	49	2600	4.34

SWRI HEAVY DUTY TRUCK STEADY STATE TEST DATA LISTING (PAGE 10 OF 15)

*** FUEL CONSUMPTION IS MEASURED IN L/100KM.

TRUCK NUMBR	MODL YEAR	TYPE OF FUEL	GVW (LBS)	NUMBR OF AXLES	BODY STYLE	USAGE OF VEH.	TEST WT. (LBS)	ENG. TYPE	MFR. CODE	CID	TEST SERIES	*** FUEL CONSUMPTION	PCT RACK TRAVEL	MPH	RPM	MPG
19	72	2	22000	1	9	7	11500	V-8	9	573	1	53.30	33.9	5	1730	4.41
19	72	2	22000	1	9	7	11500	V-8	9	573	1	36.70	35.7	10	1920	6.41
19	72	2	22000	1	9	7	11500	V-8	9	573	1	34.50	39.4	15	2300	6.82
19	72	2	22000	1	9	7	11500	V-8	9	573	1	26.80	39.4	20	2250	8.78
19	72	2	22000	1	9	7	11500	V-8	9	573	1	19.40	41.3	30	2060	12.12
19	72	2	22000	1	9	7	11500	V-8	9	573	1	25.00	70.8	40	2725	9.41
19	72	2	22000	1	9	7	11500	V-8	9	573	1	25.10	71.5	55	2625	9.37
19	72	2	22000	1	9	7	16000	V-8	9	573	2	60.10	33.3	5	1750	3.91
19	72	2	22000	1	9	7	16000	V-8	9	573	2	36.50	35.1	10	1915	6.44
19	72	2	22000	1	9	7	16000	V-8	9	573	2	36.00	40.1	15	2330	6.53
19	72	2	22000	1	9	7	16000	V-8	9	573	2	28.20	40.1	20	2276	8.34
19	72	2	22000	1	9	7	16000	V-8	9	573	2	20.00	41.3	30	2063	11.76
19	72	2	22000	1	9	7	16000	V-8	9	573	2	25.90	72.0	40	2739	9.08
19	72	2	22000	1	9	7	16000	V-8	9	573	2	27.10	72.7	55	2640	8.68
19	72	2	22000	1	9	7	20000	V-8	9	573	3	56.60	33.3	5	1722	4.16
19	72	2	22000	1	9	7	20000	V-8	9	573	3	37.10	35.1	10	1925	6.34
19	72	2	22000	1	9	7	20000	V-8	9	573	3	35.80	38.9	15	2315	6.57
19	72	2	22000	1	9	7	20000	V-8	9	573	3	28.30	39.4	20	2240	8.31
19	72	2	22000	1	9	7	20000	V-8	9	573	3	20.60	41.8	30	2065	11.42
19	72	2	22000	1	9	7	20000	V-8	9	573	3	27.30	73.3	40	2741	8.62
19	72	2	22000	1	9	7	20000	V-8	9	573	3	29.20	75.1	55	2645	8.05
20	75	2	76500	7	9	7	24500	I-6	10	855	1	98.60	9.0	5	1577	2.39
20	75	2	76500	7	9	7	24500	I-6	10	855	1	58.60	8.0	10	1550	4.01
20	75	2	76500	7	9	7	24500	I-6	10	855	1	51.00	13.0	15	1750	4.61
20	75	2	76500	7	9	7	24500	I-6	10	855	1	40.40	13.0	20	1670	5.82
20	75	2	76500	7	9	7	24500	I-6	10	855	1	36.50	24.0	30	1919	6.44
20	75	2	76500	7	9	7	24500	I-6	10	855	1	38.40	30.0	40	1850	6.13
20	75	2	76500	7	9	7	24500	I-6	10	855	1	44.40	60.0	55	1908	5.30
20	75	2	76500	7	9	7	49000	I-6	10	855	2	98.50	7.0	5	1550	2.39
20	75	2	76500	7	9	7	49000	I-6	10	855	2	61.80	10.0	10	1625	3.81
20	75	2	76500	7	9	7	49000	I-6	10	855	2	54.10	12.0	15	1750	4.35
20	75	2	76500	7	9	7	49000	I-6	10	855	2	42.20	14.0	20	1700	5.57
20	75	2	76500	7	9	7	49000	I-6	10	855	2	43.20	24.0	30	1900	5.44
20	75	2	76500	7	9	7	49000	I-6	10	855	2	42.40	36.0	40	1850	5.55
20	75	2	76500	7	9	7	49000	I-6	10	855	2	55.90	78.0	55	1880	4.21
20	75	2	76500	7	9	7	73500	I-6	10	855	3	97.30	6.0	5	1500	2.42
20	75	2	76500	7	9	7	73500	I-6	10	855	3	61.10	10.0	10	1600	3.85
20	75	2	76500	7	9	7	73500	I-6	10	855	3	53.90	12.0	15	1750	4.36
20	75	2	76500	7	9	7	73500	I-6	10	855	3	42.90	14.0	20	1700	5.48
20	75	2	76500	7	9	7	73500	I-6	10	855	3	48.30	30.0	30	1950	4.87
20	75	2	76500	7	9	7	73500	I-6	10	855	3	49.90	42.0	40	1850	4.71
20	75	2	76500	7	9	7	73500	I-6	10	855	3	65.10	97.0	55	1885	3.61

SWRI HEAVY DUTY TRUCK STEADY STATE TEST DATA LISTING (PAGE 11 OF 15)

*** FUEL CONSUMPTION IS MEASURED IN L/100KM.

TRUCK NUMBR	MODL YEAR	TYPE OF FUEL	GVW (LBS)	NUMBR OF AXLES	BODY STYLE	USAGE OF VEH.	TEST WT. (LBS)	ENG. TYPE	MFR. CODE	CID	TEST SERIES	*** FUEL CONSUMPTION	PCT RACK TRAVEL	MPH	RPM	MPG
21	73	2	76000	7	9	7	24500	I-6	10	855	1	102.30	7.0	5	1462	2.30
21	73	2	76000	7	9	7	24500	I-6	10	855	1	94.50	14.0	10	1880	2.49
21	73	2	76000	7	9	7	24500	I-6	10	855	1	52.90	12.0	15	1600	4.45
21	73	2	76000	7	9	7	24500	I-6	10	855	1	50.50	17.0	20	1786	4.66
21	73	2	76000	7	9	7	24500	I-6	10	855	1	48.00	27.0	30	1950	4.90
21	73	2	76000	7	9	7	24500	I-6	10	855	1	44.80	38.0	40	1960	5.25
21	73	2	76000	7	9	7	24500	I-6	10	855	1	41.60	64.0	55	1710	5.65
21	73	2	76000	7	9	7	49000	I-6	10	855	2	108.30	7.0	5	1400	2.17
21	73	2	76000	7	9	7	49000	I-6	10	855	2	106.20	16.0	10	1916	2.21
21	73	2	76000	7	9	7	49000	I-6	10	855	2	55.70	12.0	15	1638	4.22
21	73	2	76000	7	9	7	49000	I-6	10	855	2	53.30	18.0	20	1800	4.41
21	73	2	76000	7	9	7	49000	I-6	10	855	2	51.80	32.0	30	1968	4.54
21	73	2	76000	7	9	7	49000	I-6	10	855	2	48.80	46.0	40	1938	4.82
21	73	2	76000	7	9	7	49000	I-6	10	855	2	54.10	94.0	55	1725	4.35
21	73	2	76000	7	9	7	73500	I-6	10	855	3	94.70	7.0	5	1420	2.48
21	73	2	76000	7	9	7	73500	I-6	10	855	3	100.80	16.0	10	1911	2.33
21	73	2	76000	7	9	7	73500	I-6	10	855	3	53.30	12.0	15	1600	4.41
21	73	2	76000	7	9	7	73500	I-6	10	855	3	52.70	18.0	20	1802	4.46
21	73	2	76000	7	9	7	73500	I-6	10	855	3	52.10	32.0	30	1944	4.51
21	73	2	76000	7	9	7	73500	I-6	10	855	3	53.30	54.0	40	1970	4.41
21	73	2	76000	7	9	7	73500	I-6	10	855	3	62.10	122.0	55	1730	3.79
22	71	2	76500	7	9	7	24500	I-6	7	672	1	35.90	0.0	5	574	6.55
22	71	2	76500	7	9	7	24500	I-6	7	672	1	72.30	35.5	10	1749	3.25
22	71	2	76500	7	9	7	24500	I-6	7	672	1	40.20	16.7	15	1466	5.85
22	71	2	76500	7	9	7	24500	I-6	7	672	1	46.60	38.9	20	1820	5.05
22	71	2	76500	7	9	7	24500	I-6	7	672	1	27.50	33.3	30	1680	8.55
22	71	2	76500	7	9	7	24500	I-6	7	672	1	29.40	20.5	40	1380	8.00
22	71	2	76500	7	9	7	24500	I-6	7	672	1	42.90	55.5	55	1860	5.48
22	71	2	76500	7	9	7	49000	I-6	7	672	2	32.60	0.0	5	570	7.21
22	71	2	76500	7	9	7	49000	I-6	7	672	2	68.60	31.6	10	1699	3.43
22	71	2	76500	7	9	7	49000	I-6	7	672	2	40.00	18.9	15	1450	5.88
22	71	2	76500	7	9	7	49000	I-6	7	672	2	49.20	48.3	20	1850	4.78
22	71	2	76500	7	9	7	49000	I-6	7	672	2	30.00	36.1	30	1700	7.84
22	71	2	76500	7	9	7	49000	I-6	7	672	2	35.90	23.3	40	1377	6.55
22	71	2	76500	7	9	7	49000	I-6	7	672	2	56.30	101.0	55	1895	4.18
22	71	2	76500	7	9	7	73500	I-6	7	672	3	32.60	0.0	5	564	7.21
22	71	2	76500	7	9	7	73500	I-6	7	672	3	67.60	30.0	10	1670	3.48
22	71	2	76500	7	9	7	73500	I-6	7	672	3	40.40	18.9	15	1455	5.82
22	71	2	76500	7	9	7	73500	I-6	7	672	3	50.00	48.8	20	1850	4.70
22	71	2	76500	7	9	7	73500	I-6	7	672	3	31.90	36.1	30	1685	7.37
22	71	2	76500	7	9	7	73500	I-6	7	672	3	42.70	26.6	40	1375	5.51
22	71	2	76500	7	9	7	73500	I-6	7	672	3	58.20	101.0	55	1731	4.04

SWRI HEAVY DUTY TRUCK STEADY STATE TEST DATA LISTING (PAGE 12 OF 15)

*** FUEL CONSUMPTION IS MEASURED IN L/100KM.

TRUCK NUMBR	MODL YEAR	TYPE OF FUEL	GVW (LBS)	NUMBR OF AXLES	BODY STYLE	USAGE OF VEH.	TEST WT. (LBS)	ENG. TYPE	MFR. CODE	CID	TEST SER-IES	*** FUEL CONSUMP -TION	PCT RACK TRAVEL	MPH	RPM	MPG
23	72	2	76500	7	9	7	24500	V-8	11	568	1	111.20	0.0	5	1360	2.12
23	72	2	76500	7	9	7	24500	V-8	11	568	1	69.00	0.0	10	1520	3.41
23	72	2	76500	7	9	7	24500	V-8	11	568	1	58.30	2.8	15	1680	4.03
23	72	2	76500	7	9	7	24500	V-8	11	568	1	44.70	4.4	20	1600	5.26
23	72	2	76500	7	9	7	24500	V-8	11	568	1	40.90	11.1	30	1840	5.75
23	72	2	76500	7	9	7	24500	V-8	11	568	1	38.40	20.0	40	1840	6.13
23	72	2	76500	7	9	7	24500	V-8	11	568	1	44.40	40.5	55	1880	5.30
23	72	2	76500	7	9	7	49000	V-8	11	568	2	117.20	0.0	5	1400	2.01
23	72	2	76500	7	9	7	49000	V-8	11	568	2	69.00	0.0	10	1520	3.41
23	72	2	76500	7	9	7	49000	V-8	11	568	2	60.80	3.3	15	1700	3.87
23	72	2	76500	7	9	7	49000	V-8	11	568	2	47.10	6.7	20	1640	4.99
23	72	2	76500	7	9	7	49000	V-8	11	568	2	44.20	14.4	30	1840	5.32
23	72	2	76500	7	9	7	49000	V-8	11	568	2	45.90	29.4	40	1880	5.12
23	72	2	76500	7	9	7	49000	V-8	11	568	2	54.60	64.4	55	1880	4.31
23	72	2	76500	7	9	7	73500	V-8	11	568	3	150.30	0.0	5	1400	1.56
23	72	2	76500	7	9	7	73500	V-8	11	568	3	73.70	0.0	10	1520	3.19
23	72	2	76500	7	9	7	73500	V-8	11	568	3	64.60	4.4	15	1720	3.64
23	72	2	76500	7	9	7	73500	V-8	11	568	3	48.20	7.2	20	1640	4.88
23	72	2	76500	7	9	7	73500	V-8	11	568	3	47.00	16.7	30	2000	5.00
23	72	2	76500	7	9	7	73500	V-8	11	568	3	48.70	32.2	40	1860	4.83
23	72	2	76500	7	9	7	73500	V-8	11	568	3	61.70	83.3	55	1920	3.81
24	75	2	73500	7	9	7	24500	V-8	11	568	1	178.50	0.0	5	1775	1.32
24	75	2	73500	7	9	7	24500	V-8	11	568	1	111.90	0.0	10	1930	2.10
24	75	2	73500	7	9	7	24500	V-8	11	568	1	91.70	0.0	15	2065	2.56
24	75	2	73500	7	9	7	24500	V-8	11	568	1	57.10	0.0	20	1750	4.12
24	75	2	73500	7	9	7	24500	V-8	11	568	1	51.40	7.8	30	1905	4.58
24	75	2	73500	7	9	7	24500	V-8	11	568	1	47.80	17.8	40	1910	4.92
24	75	2	73500	7	9	7	24500	V-8	11	568	1	49.90	34.4	55	1935	4.71
24	75	2	73500	7	9	7	49000	V-8	11	568	2	177.90	0.0	5	1700	1.32
24	75	2	73500	7	9	7	49000	V-8	11	568	2	111.30	0.0	10	1850	2.11
24	75	2	73500	7	9	7	49000	V-8	11	568	2	93.60	1.1	15	2025	2.51
24	75	2	73500	7	9	7	49000	V-8	11	568	2	58.10	1.1	20	1750	4.05
24	75	2	73500	7	9	7	49000	V-8	11	568	2	52.60	7.8	30	1920	4.47
24	75	2	73500	7	9	7	49000	V-8	11	568	2	52.00	20.0	40	1910	4.52
24	75	2	73500	7	9	7	49000	V-8	11	568	2	56.40	36.6	55	1935	4.17
24	75	2	73500	7	9	7	73500	V-8	11	568	3	179.80	0.0	5	1750	1.31
24	75	2	73500	7	9	7	73500	V-8	11	568	3	112.70	0.2	10	1855	2.09
24	75	2	73500	7	9	7	73500	V-8	11	568	3	96.10	1.1	15	2050	2.45
24	75	2	73500	7	9	7	73500	V-8	11	568	3	59.50	1.1	20	1715	3.95
24	75	2	73500	7	9	7	73500	V-8	11	568	3	60.80	13.9	30	1920	3.87
24	75	2	73500	7	9	7	73500	V-8	11	568	3	65.60	32.2	40	1925	3.59
24	75	2	73500	7	9	7	73500	V-8	11	568	3	86.40	66.0	55	1950	2.72

SWRI HEAVY DUTY TRUCK STEADY STATE TEST DATA LISTING (PAGE 13 OF 15)

*** FUEL CONSUMPTION IS MEASURED IN L/100KM.

TRUCK NUMBR	MODL YEAR	TYPE OF FUEL	GVW (LBS)	NUMBR OF AXLES	BODY STYLE	USAGE OF VEH.	TEST WT. (LBS)	ENG. TYPE	MFR. CODE	CID	TEST SER-IES	*** FUEL CONSUMP-TION	PCT RACK TRAVEL	MPH	RPM	MPG
25	75	2	73500	7	9	7	24500	I-6	10	855	1	89.70	7.0	5	1300	2.62
25	75	2	73500	7	9	7	24500	I-6	10	855	1	93.10	14.0	10	1920	2.53
25	75	2	73500	7	9	7	24500	I-6	10	855	1	46.40	12.0	15	1600	5.07
25	75	2	73500	7	9	7	24500	I-6	10	855	1	45.60	11.0	20	1770	5.16
25	75	2	73500	7	9	7	24500	I-6	10	855	1	36.00	19.0	30	1680	6.53
25	75	2	73500	7	9	7	24500	I-6	10	855	1	39.20	34.0	40	1960	6.00
25	75	2	73500	7	9	7	24500	I-6	10	855	1	34.90	49.0	55	1700	6.74
25	75	2	73500	7	9	7	49000	I-6	10	855	2	79.30	6.0	5	1300	2.97
25	75	2	73500	7	9	7	49000	I-6	10	855	2	93.10	14.0	10	1900	2.53
25	75	2	73500	7	9	7	49000	I-6	10	855	2	49.60	12.0	15	1630	4.74
25	75	2	73500	7	9	7	49000	I-6	10	855	2	48.00	16.0	20	1800	4.90
25	75	2	73500	7	9	7	49000	I-6	10	855	2	39.00	24.0	30	1700	6.03
25	75	2	73500	7	9	7	49000	I-6	10	855	2	45.80	44.0	40	1970	5.14
25	75	2	73500	7	9	7	49000	I-6	10	855	2	48.10	82.0	55	1700	4.89
25	75	2	73500	7	9	7	73500	I-6	10	855	3	82.30	6.0	5	1300	2.86
25	75	2	73500	7	9	7	73500	I-6	10	855	3	93.70	15.0	10	1900	2.51
25	75	2	73500	7	9	7	73500	I-6	10	855	3	49.30	12.0	15	1580	4.77
25	75	2	73500	7	9	7	73500	I-6	10	855	3	47.80	17.0	20	1770	4.92
25	75	2	73500	7	9	7	73500	I-6	10	855	3	42.80	27.0	30	1700	5.50
25	75	2	73500	7	9	7	73500	I-6	10	855	3	52.40	56.0	40	1980	4.49
25	75	2	73500	7	9	7	73500	I-6	10	855	3	60.60	120.0	55	1700	3.88
26	74	2	49800	4	9	7	16000	I-6	11	426	1	80.80	0.0	5	1360	2.91
26	74	2	49800	4	9	7	16000	I-6	11	426	1	50.40	0.0	10	1500	4.67
26	74	2	49800	4	9	7	16000	I-6	11	426	1	42.00	0.0	15	1600	5.60
26	74	2	49800	4	9	7	16000	I-6	11	426	1	33.70	0.1	20	1640	6.98
26	74	2	49800	4	9	7	16000	I-6	11	426	1	27.10	5.6	30	1600	8.68
26	74	2	49800	4	9	7	16000	I-6	11	426	1	30.90	16.7	40	1840	7.61
26	74	2	49800	4	9	7	16000	I-6	11	426	1	36.40	38.9	55	1920	6.46
26	74	2	49800	4	9	7	32000	I-6	11	426	2	79.70	0.0	5	1360	2.95
26	74	2	49800	4	9	7	32000	I-6	11	426	2	50.10	0.0	10	1520	4.69
26	74	2	49800	4	9	7	32000	I-6	11	426	2	42.80	0.0	15	1680	5.50
26	74	2	49800	4	9	7	32000	I-6	11	426	2	34.50	0.6	20	1640	6.82
26	74	2	49800	4	9	7	32000	I-6	11	426	2	29.00	7.8	30	1600	8.11
26	74	2	49800	4	9	7	32000	I-6	11	426	2	34.60	21.6	40	1840	6.80
26	74	2	49800	4	9	7	32000	I-6	11	426	2	44.30	48.8	55	1920	5.31
26	74	2	49800	4	9	7	48000	I-6	11	426	3	80.00	0.0	5	1400	2.94
26	74	2	49800	4	9	7	48000	I-6	11	426	3	51.00	0.0	10	1500	4.61
26	74	2	49800	4	9	7	48000	I-6	11	426	3	42.30	0.2	15	1680	5.56
26	74	2	49800	4	9	7	48000	I-6	11	426	3	35.70	0.6	20	1600	6.59
26	74	2	49800	4	9	7	48000	I-6	11	426	3	31.20	10.0	30	1600	7.54
26	74	2	49800	4	9	7	48000	I-6	11	426	3	37.70	23.9	40	1840	6.24
26	74	2	49800	4	9	7	48000	I-6	11	426	3	53.90	62.7	55	1920	4.36

SWRI HEAVY DUTY TRUCK STEADY STATE TEST DATA LISTING (PAGE 14 OF 15)

*** FUEL CONSUMPTION IS MEASURED IN L/100KM.

TRUCK NUMBR	MODL YEAR	TYPE OF FUEL	GVW (LBS)	NUMBR OF AXLES	BODY STYLE	USAGE OF VEH.	TEST WT. (LBS)	ENG. TYPE	MFR. CODE	CID	TEST SER-IES	*** FUEL CONSUMP-TION	PCT RACK TRAVEL	MPH	RPM	MPG
27	72	2	76500	7	9	7	24500	V-8	10	903	1	75.30	6.0	5	1500	3.12
27	72	2	76500	7	9	7	24500	V-8	10	903	1	78.40	14.0	10	2200	3.00
27	72	2	76500	7	9	7	24500	V-8	10	903	1	66.40	18.0	15	2400	3.54
27	72	2	76500	7	9	7	24500	V-8	10	903	1	52.80	19.0	20	2400	4.45
27	72	2	76500	7	9	7	24500	V-8	10	903	1	31.60	17.0	30	1920	7.44
27	72	2	76500	7	9	7	24500	V-8	10	903	1	34.40	30.0	40	2200	6.84
27	72	2	76500	7	9	7	24500	V-8	10	903	1	39.80	64.0	55	2280	5.91
27	72	2	76500	7	9	7	49000	V-8	10	903	2	79.90	6.0	5	1500	2.94
27	72	2	76500	7	9	7	49000	V-8	10	903	2	80.60	14.0	10	2200	2.92
27	72	2	76500	7	9	7	49000	V-8	10	903	2	65.00	18.0	15	2400	3.62
27	72	2	76500	7	9	7	49000	V-8	10	903	2	51.60	20.0	20	2400	4.56
27	72	2	76500	7	9	7	49000	V-8	10	903	2	33.80	20.0	30	1920	6.96
27	72	2	76500	7	9	7	49000	V-8	10	903	2	40.60	40.0	40	2200	5.79
27	72	2	76500	7	9	7	49000	V-8	10	903	2	52.40	107.0	55	2300	4.49
27	72	2	76500	7	9	7	73500	V-8	10	903	3	80.90	6.0	5	1500	2.91
27	72	2	76500	7	9	7	73500	V-8	10	903	3	75.90	13.0	10	2100	3.10
27	72	2	76500	7	9	7	73500	V-8	10	903	3	66.80	20.0	15	2400	3.52
27	72	2	76500	7	9	7	73500	V-8	10	903	3	54.50	20.0	20	2400	4.32
27	72	2	76500	7	9	7	73500	V-8	10	903	3	37.60	24.0	30	1920	6.26
27	72	2	76500	7	9	7	73500	V-8	10	903	3	48.00	52.0	40	2240	4.90
27	72	2	76500	7	9	7	73500	V-8	10	903	3	70.60	158.0	55	2200	3.33
28	67	2	41500	2	20	4	16000	I-6	10	743	1	89.90	13.0	5	1640	2.62
28	67	2	41500	2	20	4	16000	I-6	10	743	1	72.80	20.0	10	2000	3.23
28	67	2	41500	2	20	4	16000	I-6	10	743	1	43.60	19.0	15	1880	5.39
28	67	2	41500	2	20	4	16000	I-6	10	743	1	38.10	21.0	20	1960	6.17
28	67	2	41500	2	20	4	16000	I-6	10	743	1	25.80	23.0	30	1800	9.12
28	67	2	41500	2	20	4	16000	I-6	10	743	1	25.20	26.0	40	1840	9.33
28	67	2	41500	2	20	4	16000	I-6	10	743	1	26.00	40.0	55	2000	9.05
28	67	2	41500	2	20	4	24500	I-6	10	743	2	94.60	13.0	5	1680	2.49
28	67	2	41500	2	20	4	24500	I-6	10	743	2	74.30	23.0	10	2100	3.17
28	67	2	41500	2	20	4	24500	I-6	10	743	2	45.20	20.0	15	1920	5.20
28	67	2	41500	2	20	4	24500	I-6	10	743	2	37.70	23.0	20	2000	6.24
28	67	2	41500	2	20	4	24500	I-6	10	743	2	27.10	25.0	30	1760	8.68
28	67	2	41500	2	20	4	24500	I-6	10	743	2	27.50	38.0	40	1840	8.55
28	67	2	41500	2	20	4	24500	I-6	10	743	2	33.60	80.0	55	2000	7.00
28	67	2	41500	2	20	4	40500	I-6	10	743	3	83.90	11.0	5	1600	2.80
28	67	2	41500	2	20	4	40500	I-6	10	743	3	74.50	20.0	10	2040	3.16
28	67	2	41500	2	20	4	40500	I-6	10	743	3	45.40	20.0	15	1920	5.18
28	67	2	41500	2	20	4	40500	I-6	10	743	3	40.50	24.0	20	1960	5.81
28	67	2	41500	2	20	4	40500	I-6	10	743	3	30.20	30.0	30	1800	7.79
28	67	2	41500	2	20	4	40500	I-6	10	743	3	33.80	50.0	40	1840	6.96
28	67	2	41500	2	20	4	40500	I-6	10	743	3	47.60	120.0	55	1900	4.94

SWRI HEAVY DUTY TRUCK STEADY STATE TEST DATA LISTING (PAGE 15 OF 15)

*** FUEL CONSUMPTION IS MEASURED IN L/100KM.

TRUCK NUMBR	MODL YEAR	TYPE OF FUEL	GVW (LBS)	NUMBR OF AXLES	BODY STYLE	USAGE OF VEH.	TEST WT. (LBS)	ENG. TYPE	MFR. CODE	CID	TEST SER-IES	*** FUEL CONSUMP-TION	PCT RACK TRAVEL	MPH	RPM	MPG
29	75	2	25160	1	9	7	16000	V-8	9	573	1	62.30	7.8	5	1700	3.78
29	75	2	25160	1	9	7	16000	V-8	9	573	1	40.20	11.1	10	1840	5.85
29	75	2	25160	1	9	7	16000	V-8	9	573	1	34.60	17.5	15	2040	6.80
29	75	2	25160	1	9	7	16000	V-8	9	573	1	28.90	17.8	20	2040	8.14
29	75	2	25160	1	9	7	16000	V-8	9	573	1	23.80	18.0	30	2000	9.88
29	75	2	25160	1	9	7	16000	V-8	9	573	1	26.00	27.8	40	2320	9.05
29	75	2	25160	1	9	7	16000	V-8	9	573	1	28.90	32.2	55	2320	8.14
29	75	2	25160	1	9	7	20500	V-8	9	573	2	64.10	7.2	5	1600	3.67
29	75	2	25160	1	9	7	20500	V-8	9	573	2	40.60	11.7	10	1840	5.79
29	75	2	25160	1	9	7	20500	V-8	9	573	2	34.90	17.2	15	2040	6.74
29	75	2	25160	1	9	7	20500	V-8	9	573	2	28.50	17.2	20	2040	8.25
29	75	2	25160	1	9	7	20500	V-8	9	573	2	24.50	18.3	30	2000	9.60
29	75	2	25160	1	9	7	20500	V-8	9	573	2	27.30	27.2	40	2300	8.62
29	75	2	25160	1	9	7	20500	V-8	9	573	2	32.00	33.3	55	2320	7.35
29	75	2	25160	1	9	7	24500	V-8	9	573	3	69.30	7.8	5	1680	3.39
29	75	2	25160	1	9	7	24500	V-8	9	573	3	42.00	11.1	10	1840	5.60
29	75	2	25160	1	9	7	24500	V-8	9	573	3	35.70	17.2	15	2040	6.59
29	75	2	25160	1	9	7	24500	V-8	9	573	3	29.90	17.2	20	2040	7.87
29	75	2	25160	1	9	7	24500	V-8	9	573	3	25.90	18.3	30	2000	9.08
29	75	2	25160	1	9	7	24500	V-8	9	573	3	28.40	27.2	40	2300	8.28
29	75	2	25160	1	9	7	24500	V-8	9	573	3	35.20	104.3	55	2320	6.68
30	75	2	47800	2	6	6	16000	V-8	11	318	1	81.10	23.9	5	1760	2.90
30	75	2	47800	2	6	6	16000	V-8	11	318	1	44.60	23.9	10	1760	5.27
30	75	2	47800	2	6	6	16000	V-8	11	318	1	35.90	27.2	15	1920	6.55
30	75	2	47800	2	6	6	16000	V-8	11	318	1	29.50	28.9	20	1840	7.97
30	75	2	47800	2	6	6	16000	V-8	11	318	1	24.00	34.4	30	1840	9.80
30	75	2	47800	2	6	6	16000	V-8	11	318	1	26.80	47.7	40	2160	8.78
30	75	2	47800	2	6	6	16000	V-8	11	318	1	28.70	64.9	55	2160	8.20
30	75	2	47800	2	6	6	24500	V-8	11	318	2	78.20	23.3	5	1600	3.01
30	75	2	47800	2	6	6	24500	V-8	11	318	2	44.90	24.4	10	1680	5.24
30	75	2	47800	2	6	6	24500	V-8	11	318	2	36.60	26.6	15	1920	6.43
30	75	2	47800	2	6	6	24500	V-8	11	318	2	31.00	28.9	20	1920	7.59
30	75	2	47800	2	6	6	24500	V-8	11	318	2	26.50	36.6	30	1840	8.88
30	75	2	47800	2	6	6	24500	V-8	11	318	2	31.00	51.1	40	2160	7.59
30	75	2	47800	2	6	6	24500	V-8	11	318	2	37.00	79.4	55	2160	6.36
30	75	2	47800	2	6	6	40000	V-8	11	318	3	77.50	21.6	5	1680	3.03
30	75	2	47800	2	6	6	40000	V-8	11	318	3	44.60	23.9	10	1760	5.27
30	75	2	47800	2	6	6	40000	V-8	11	318	3	37.70	27.8	15	1920	6.24
30	75	2	47800	2	6	6	40000	V-8	11	318	3	30.90	31.1	20	1840	7.61
30	75	2	47800	2	6	6	40000	V-8	11	318	3	27.20	38.9	30	1840	8.65
30	75	2	47800	2	6	6	40000	V-8	11	318	3	33.00	54.9	40	2160	7.13
30	75	2	47800	2	6	6	40000	V-8	11	318	3	44.00	97.1	55	2200	5.35